21.—EPITOME OF SPECIAL REPORTS UPON THE SEAL-ISLANDS IN THE ARCHIVES OF THE TREASURY DEPARTMENT.

THE OFFICIAL FILES OF THE TREASURY DEPARTMENT.—The first direct reports received by the government from its agents were those of Charles Bryant and H. H. McIntyre, each dated November 30, 1869, and addressed to the Secretary of the Treasury; they were published by order of Congress January 26, 1870. (See Ex. Doc. No. 32, 41st Congress, 2d session.) The references made to the seal-life in these documents are very brief and general.

On the 30th December, 1870, the next communication from the seal-islands touching the condition of the animals, etc., was received by the Treasury Department from its agent, Mr. S. N. Büynitsky; it is a very brief review of the whole state of affairs. (See Ex. Doc. No. 83, 44th Congress, 1st session, pp. 41 and 44 inclusive.) This is followed on November 10, 1871, by another report upon the same subject by Charles Bryant, still brief and general. (Ex. Doc. No. 83, 44th Congress, 1st session, pp. 59 and 66 inclusive.) It is a mere synopsis of the success of the sealing season, and is followed by another routine report by the same author, dated August 15, 1872, of the same vague and general tenor.

A series of brief annual reports of this character by the agents of the Treasury Department have been annually received by the government from Messrs. Bryant, Morton, and Otis, respectively, up to date, being all restricted to short business recapitulations of the season's work in sealing, condition of the natives, etc.; they are supplemented and illustrated by the reports made by the assistant special agents of the Treasury Department, who address their communications to the treasury agent in charge, or chief special officer of the government.

The last two annual reports of Colonel Otis, special agent Treasury Department, are elaborated in regard to the details of sealing-labor and figures of the progress of the work itself. He gives no special attention to the life and habits of the fur-seal in his communication to the Secretary.

I. ILLUSTRATIVE AND SUPPLEMENTAL NOTES.

22. THE RUSSIAN SEAL-ISLANDS, BERING AND COPPER, OR THE COMMANDER GROUP.

EXTRACTED FROM PROFESSOR NORDENSKIÖLD'S REPORT IN REFERENCE TO BERING ISLAND

[Translated by Capt. G. Niebaum.]

ARRIVAL OF NORDENSKIÖLD: LOCATION OF BERING ISLAND.—The Vega anchored on the 14th August, 1879, in a rather poor, open harbor on the northwest coast of the island. Bering island is the most westerly of the Aleutian islands, and is situated nearest Kamtchatka; it does not belong, nor does the neighboring Copper island, to America, but to Asia, and is controlled by Russia; nevertheless, the American Alaska Company have obtained the hunting privilege, and maintain here a not inconsiderable trading-station, which consists of about 300 inhabitants, supplying them with provisions and manufactured goods, and from them in turn receiving their labor, principally rendered in taking skins of the eared-seal, or sea-bear (*Otaria ursina*); between 40,000 and 100,000* of

* These figures are in error; the table given at the close of this translation will show it. It is well known that the fur-seal, as it bred, was first seen and described by Steller, who wrote his description on this island, when shipwrecked there with Bering, in 1741–'42. Steller's account and the stories of the survivors drew a large concourse of rapacious hunters to the Commander islands; they appear, as near as I can arrive at truths, from the scanty record, to have quickly exterminated the sea-otters, and to have killed many and harrassed the other fur-seals entirely away from the island; so that there was an interregnum between 1760 and 1786, during which time the Russian promyshleniks took no fur-seals, and were utterly at loss to know whither these creatures had fled from the islands of Bering and Copper. When they (the seals) began to revisit their haunts on the Commander islands, I can find no specific date; but I am inclined to believe that they did not reappear on Bering and Copper islands to anything like the number seen by Steller, until 1837–'38; perhaps have not done so until quite recently. At least, in 1867, the Russians did not think more than 20,000 skins could be secured there annually, while they declared 100,000 could be taken readily at the Pribylovs; again, since 1867 the capacity of the Commander group has gradually increased from 15,000 to 20,000, then to 40,000 and 50,000 "holluschickie" per annum. Now, this striking improvement is due, doubtless, to the superior treatment of the whole business by the Alaska Commercial Company, which had also leased these interests from the Russian government in 1871 for a term of 20 years. I think, therefore, that when the fur-seals on the Commander islands became so ruthlessly hunted and harrassed shortly after Steller's observations in 1742, then they soon repaired, or rather most of the survivors did, to the shelter and isolation of the Pribylov group, which was wholly unknown to man; and it remained so until 1786–'87. Then succeeded a period between, up to 1842–'45, when the unhappy seals had but little rest or choice between the Commander and the Pribylov islands, and must have sadly diminished, as the record shows, in numbers.

The unfortunate overland journey of Steller, which alternately starved and froze him into a low fever that ended his young and promising life in a yourt on the Siberian steppes, November 12, 1745, six years prior to the first publication of his celebrated notes on the

these animals are killed yearly on this and the neighboring Copper island; those are the animals from which is obtained the brown, silky, soft seal-skin, which of late has become so fashionable. In order to watch over the interest of the Russian government and to maintain order, there are also a few Russian officers stationed here.

SKETCH OF THE VILLAGE.—A half dozen convenient wooden houses are here erected, used for warehouses and stores, also for the use of servants of the Russian government and of the company. The natives live partly in adobe houses, quite roomy and not unpleasant inside; partly in small wooden houses which the company are gradually endeavoring to introduce, instead of turf houses, by yearly importing and giving away a few such houses to the most deserving ones of the inhabitants. A church for Greek-Catholic service is also there, and a roomy school-house intended for children of the Aleutians. Unfortunately, the school was now closed, but to judge from the copy-books which were lying around in the school-room, the teaching here is not to be despised. At least the writing proofs were conspicuous for their cleanliness, absence of school blots, and an exceedingly even and beautiful handwriting. At the "colony" the houses are collected in one place in a village, which, from the sea, has the appearance somewhat of a small Norwegian fisherman village. Beside these, a few scattered houses are to be found here and there on other parts of the island, as, for instance, on the northeast side, where cultivation of potatoes is carried on on a small scale, at the hunting-place on the north side, where a couple of large warehouses and a number of very small underground houses are to be found, and are used only during the killing-season.

DISCOVERY OF THE ISLAND.—Geographically, as well as in regard to natural history, Bering island is one of the most curious islands in the northern part of the Pacific ocean. It was here where Bering, after his last disastrous voyage in this sea, which now bears his name, on the 19th of December, 1741, finished his long career as a discoverer, shortly after his ship, during a storm, crushed against the cliffs on the north coast of the island. Many of his fellow-travelers survived him, among them the learned naturalist Steller, who left a masterly description, seldom equaled, of the natural history of this island, where he involuntarily spent his time from the middle of November, 1741, to the end of August, 1742.

As far as is known, Bering island had never before been visited by man. It was the desire to obtain for our museums the skins and skeletons of the many curious mammiferous animals existing here, as also to compare the present condition of the island, since it has nearly a century and a half been mercilessly exposed to hunting and the cupidity of mankind, with the vivacious and striking description left by Steller, which prompted me to put down on our traveling plan a visit to the island. The news I gathered on Bering island from American papers, about the uneasiness which our wintering in the Arctic had created in Europe, really prevented me from remaining here as long as I should have wished; but, nevertheless, our collections and observations are exceedingly valuable.

CHANGES SINCE STELLER'S TIME.—Since the time of Steller, the animal life has undergone a considerable change on the island. Foxes (or, more correctly, "fjellrackor", Swedish) existed then in unusual numbers. Not alone did they eat up everything that could be eaten at all which was left outside, but they forced themselves in the houses during the day as well as night, and carried away anything they could, even articles that could be of no use to them, such as knives, sticks, sacks, shoes, and socks. It became necessary, when doing certain things out of doors, to drive them away with sticks, and at last they became—through the slyness and cunning with which they managed to consummate their thieving, and the cleverness with which they combined their efforts to attain objects which they alone could not accomplish—really dangerous, mischief-making animals for the castaways. Since then thousands upon thousands have been taken here by fur-hunters. Now they are so rare that during our stay here we did not see a single animal. The remaining ones are said not to have the formerly so commonly-seen black-blue coat, but the white, which is not very costly. On the neighboring Copper island there are still considerable numbers of black-blue foxes.

Steller and his fellow-travelers killed here in 1741–'42, seven hundred sea-otters. This animal, known for its very costly and fine fur, is now entirely driven from Bering island.

Of sea-lions, *Otaria Stelleri*, which were formerly very numerous, but few now visit this place; also sea-bears, *Otaria ursina*, and finally, the most curious of all the former mammalia on Bering island, the great sea-cow, is now altogether extinct.

MARINE "NEAT CATTLE".—Steller's sea-cow, *Rhytina Stelleri*, took the place, in a certain way, of the hoofed animal among the sea-mammalia. It was of a nut-brown color and covered with hair which had grown together into an outer hide, much like the bark of an old oak tree. Its length was, according to Steller, even to 35 feet, and its weight almost five hundred hundred weight. The head was large, neck short, hardly distinguishable, forepart of body very thick, but suddenly narrowing backward. It had two short fore-legs, which terminated abruptly without any fingers or nails, but with close-gathered bristle hair; hind-legs were missing altogether and replaced by a tail-fin, something like the whale. Teats, which were very rich in milk with the females, had their places between the forelegs. The flesh and milk resembled very much that of neat-cattle; it was even better than the latter, according to Steller.

"sea-bears" of Bering island, often occurs sadly to my mind in this connection; for, undoubtedly, had he lived then to have reached St. Petersburg, whither he was bound, he would have enlarged and polished these items, which now appear in the *Proceedings of the Imperial Academy*, 1751, just as he had roughly drafted them in the field, May and June, 1742. This revision of his field jottings would have undoubtedly supplied many links now missing to the disconnected history of the seal-life on the Commander islands, as it presents itself to us at this late day.—H. W. E.

The sea-cows were almost constantly occupied in feeding on those sea-weeds found in abundance along the coast, in doing which they moved neck and head as an ox. They showed great gluttony, and were not disturbed in the least by the presence of people. It was possible to go up to and even to touch them without their being scared or seeming to mind it. Toward each other they showed great affection, and when one was harpooned the others made unusual efforts to save it.

When Steller was there these animals collected in great herds as neat-cattle, grazing everywhere along the shores. A great number were killed by Steller and his companions. Later the hunt for these animals was an important food-item for those Russians who sailed from Kamtchatka to the Aleutian islands. Hundreds were killed yearly, and it was soon exterminated, as it existed, if we except a few animals gone astray, at that time only on Bering island. According to what Middendorf quotes from the very careful researches which the celebrated academicians v. Baer and v. Brandt had made, the sea-cow had not been seen before Steller's time, 1741, and the last was said to have been killed in 1768. During the many investigations I made among the natives, I obtained reliable information that the sea-cow had been killed much later. A "creole" (*i. e.*, a mixture of Russian and Aleut), who is now sixty-seven years old, of clever appearance and perfect mental condition, said that his father died in 1847, aged eighty-eight. The father was from Wolhynien, and came to Bering island when eighteen years of age, that is, in 1777. The first two or three years (that is, 1779 or 1780) after his arrival, they used to kill sea-cows as they grazed at low-water mark. Only the heart was eaten; the hide was used for badarrahs. In consequence of its thickness it was split in two parts. Two such split hides were sufficient to cover a badarrah of 20 feet length, 7½ feet width, and 3 feet depth. After that time none of these animals had been killed.

LAST SIGHT OF SEA-COW HERE.—It is surmised that a sea-cow had shown itself much later around the island. Two "creoles", Teodor Merchenin and Stepnoff, saw, about twenty-five years ago, at Tolstoi Mees, on the east of the island, an animal which they did not know; it was very thick forward and tapered backward, had small fore-feet, and showed itself about 15 feet above the water, rising and again sinking. It blew, not through a blow-hole, but through its mouth, which was somewhat elongated. Its color was brown, with large light spots. It had no fin on the back, but when it raised itself it was possible to see the vertebræ lumps, in consequence of its very lean condition. I made a very thorough examination of the two tales-men. Their story agreed fully, and appeared as if entitled to be given credence.

One of the Alaska company's hide-examiners, Mr. Ohsche, a native of Lifland and for the present living on Copper island, told me that bones of the sea-cow could be found on the west side of Copper island, in the center. Again, it is said that no bones exist on the little islet, opposite the colony, although bones are plenty on the neighboring beach on the main island. This is the meager information I could gather from the natives and other people residing here about the animal. But I was very fortunate in being able to collect a very large and beautiful assortment of skeleton parts.

NORDENSKIÖLD'S SUCCESS IN GETTING ITS BONES.—When I first made the acquaintance of the Europeans living on the island, I was told that there was a very poor show for making any large collections. The company had in vain offered 150 rubles for a skeleton. But after I had been ashore a few hours I already found out that larger and smaller collections of bones were to be found here and there in the huts of the natives. Those I bought, paying purposely for them in such a way that the seller was more than satisfied, and his neighbor a little envious. A large portion of the male population now commenced very zealously to hunt for bones, and in this manner I got together twenty-one casks, large boxes, and barrels full of *Rhytina* bones, among them many very extensive bone-collections from the same animal, two whole, very pretty, and several more or less damaged skulls, etc.

BONES OF THE EXTINCT SEA-COW OF STELLER.—*Rhytina* bones are not lying near the water-edge, but on a beach-shelf, 6 to 10 feet high, thickly covered with grass. They are usually covered with a layer of earth *débris* of 1 to 1½ feet thickness, and in order to find them we had to explore the ground with a bayonet or a sharp iron, as it would have been too laborious to dig up the whole grass layer. A person very soon gets accustomed to distinguish, by the sound or the feeling of the bayonet, whether he has struck against a stone, a piece of wood, or a piece of bone.

In consequence of their hard ivory-like condition, the *Rhytina* bones are used by the natives for sleigh-runners and for carvings. They are, therefore, already to a great extent used up and rarer than other bones. The bones from the finger seem in most cases to be entirely destroyed, and the same is the case with the extreme tail-parts.

FUR-SEALS ON BERING ISLAND.—The only large animal which still exists on the island, in perhaps as large numbers as at the time of Steller, is the sea-bear, *Otaria ursina*. Even that had decreased so that the yearly catch was a very inconsiderable one, when the Alaska Company obtained the exclusive privilege for hunting, by a payment to the Russian government of, if I remember right, two rubles for each animal killed. The hunting was then organized on a more advantageous basis. At certain periods of the year the animals are now altogether unmolested. The number of animals to be killed is settled beforehand, just the same as the farmer in the fall of the year (slaughtering-time, Swedish custom) is in the habit of doing with his cattle. After that is done, the animals condemned to death are selected as well as can be done in a hurry, but animals with poor skin, old females and pups, are liberated. Those numerous flocks of sea-bears, which are found on the shores of Bering and Copper islands, are consequently handled nearly the same as a herd of tame animals. This can only be done in that manner, because

the animals are in the habit of spending several months of the year, almost without interruption* and without eating any food, on certain long, rocky spits running out into the sea from those islands. They congregate here in hundreds of thousands, in closely packed flocks on the beach. On those places it is strictly prohibited to hunt the animal or to disturb it during its rest, without special permission from the village foreman, who is selected by the Aleuts living in the place. When a number of sea-bears are to be killed, a flock is surrounded by a sufficient number of hunters and are driven with sticks up on the grass a short distance from the beach. Then females and young ones, and those males whose fur-coat is not desirable, are driven away. The remaining ones are stunned first with a blow on the nose, and then stabbed with a knife.

INSPECTION OF A ROOKERY.—Accompanied by the village foreman, a black-haired stuttering Aleut, and the "Cossac", a young, neat, and polite man, who on special occasions carries a saber of nearly his own length, but who otherwise not in the least answered to the Cossac type accepted by writers of novels and dramas, a few of us visited a spit sticking out in the sea from the north side of the island, which is a favorite resting-place for sea-bears. Just at that time there were, in accordance with surely overestimated statements which we received, 200,000 animals congregated at the spit and neighboring beaches. Accompanied by our guides we received permission to crawl close on to a flock lying a little separate. The older animals were a little uneasy at first, when they noticed that we crawled near them, but they very soon settled down again, and we now had the pleasure of a peculiar spectacle. We were the only spectators. The scene consisted of a stone-covered beach wreathed with foaming breakers, the background of the unmeasurable sea, and the actors thousands of curiously-formed animals.

A number of old males were lying still and immovable, unconcerned about what went on around them. Others crawled on their short, small legs clumsily among the rocks on the beach, or swam with incredible suppleness among the breakers, playing, cooing with each other, and quarreling. In one place two older animals fought with a peculiar wheezing noise, in a manner as if the fighting had taken place with studied positions for attack and defense. In another, a sham fight between an old animal and a pup. It appeared as if that one was receiving lessons in the art of fencing. Everywhere the little black pups were crawling friskily to and fro between the others, now and then bleating like lambs calling their mothers. Often the pups are crushed by the old, when scared by some untoward circumstance they rush out in the sea. Hundreds of dead pups are found after such an alarm on the beach.

"Only" 13,000 animals had been killed this year. Their skinned carcasses were lying heaped in the grass on the beach, spreading a disagreeable smell far and wide, which after all did not scare the comrades lying on neighboring points, because among them a similar smell prevailed on account of the many dead animals remaining on the beach, either crushed or dead from natural causes. Among this large herd of sea-bears a single sea-lion was enthroned on top of a high rock, the only one of those animals which we had seen during our travel.

Against payment of 40 rubles I prevailed on the village chief to prepare for me four skeletons of those half rotten carcasses lying in the grass, and afterward I received, through the kindness of the Russian authorities and without any compensation, for stuffing, six animals, among them two live pups. Even those we had to kill, after in vain having tried to make them take food. One of them will be brought home, in alcohol, for anatomical investigation.

CHARACTER OF BERING ISLAND.—That part of Bering island which we saw is composed of a plateau resting on volcanic mountains,† which in many places is broken by deep cañons. In their bottoms are usually found lakes, which through smaller or larger streams connect with the sea.

The border of the lakes and the mountain slopes are covered with a rich vegetation of long grass and beautiful flowers, among which a sword lily, that is cultivated in our gardens, the useful dark-red brown Savannah lily, several orchids, two kinds of rhododendrons, large flowers, umbellifers the height of a man, sunflowers like synanthaus, etc.

An entirely different kind of flora prevailed on the islet which lies outside the harbor.

Toporkoff islet consists of an eruptive rock, which everywhere toward the shores, a few score yards from high-water mark, rises up in the form of abrupt, low, cracked walls from 5 to 10 meters in height, differing in different places. Above those abrupt mountain walls the surface of the island is formed of an even plane; what lies below, forms a gradually sloping beach.

The gradually sloping beach consists of two well-defined belts, an outer one without any vegetation, an inner one overgrown with *Ammadenia peploides*, *Elymus mollis*, and two kinds of umbellates, *Heracleum sibiricum* and *Angelica archangelica*, of which the two last named form an almost impenetrable brush, about 50 meters wide, man high, along the shelf.

The abrupt mountain walls are in some places yellow-colored from the *Caloplacmus murorum* and *C. cremulata*, in other places quite closely clothed with *Cochlearia fenestrata*.

*During a long continued heavy rain many of the animals are said to seek shelter in the sea, but return as soon as the rain ceases.

†According to Mr. Greboritsky, tertiary petrifactions and seams of coal are found on Bering, the former north of the colony in the interior of the island, the latter at the water's edge south of Bering's grave. Also, near the colony, the underlayer below trachyte beds is composed of immense sand layers.

The uppermost even plateau is covered by a luxuriant close grass-carpet, over which a few stalks of the two above-named umbellates raise themselves here and there.

Vegetation on this little islet combines an unusual poverty of various species with a high degree of luxuriance.

Of higher order of animals we saw only four species of birds, namely, *Fratercula cirrhata*, *Uria grylle*, one species of *Phalacrocorax* (Swedish skafvar), and one kind of the gull (*Larus*) species, which live here by the millions. They occupied the upper plateau, where they had everywhere dug out short, deep, and unusually broad passages, with two openings, in which they slept. From there they flew, on our arrival, in large flocks to and from the sea. Their numbers were almost comparable with the auks on the Arctic bird cliffs. The other ducks nestled along the shore cliffs.

The number of the non-vertebrate land-animals foots up perhaps to thirty species. The most numerous are Machelis, Vitrina, Lithobias, Talitrus, a few two-winged beetles (bugs). They all lived on the inner belt of the shore, where the ground is unusually damp.

MUCH MILDER CLIMATE THAN THAT OF THE PRIBYLOV GROUP.—Bering island could, without difficulty, feed large herds of cattle, perhaps as numerous as the herds of sea-cows which formerly grazed along its shores. The sea-cow had, as it were, chosen its grazing place with discrimination, because the sea about here, according to Dr. Kjelman, is one of the richest kelp-places in the world. The bottom of the sea is covered, in favorable places, with kelp forests, from 60 to 100 feet high, which are so dense that the scraper with difficulty penetrates down in them, a circumstance which made the dredging exceedingly difficult. Certain kind of kelp is used by the inhabitants for food.

SALMON ON THE ISLAND.—That spit, where the sea-bears have their rookeries, is about 20 kilometers distant from the village. We went there each on his sleigh drawn by about ten dogs. During this trip, at a resting-place half-way between the village and the rookeries, we had occasion to take part in a very peculiar fishing. Our halting-place was on an even grass meadow, cut through by innumerable brooks. Those were full of various kinds of fishes, among them a kind of siik (gwiniad, Swedish), a small trout (forell), a medium-sized salmon, with almost white meat, but with purple-red skin, and another of about the same length, but very broad and with a hump on the back. These were easily taken. They were taken by hand, harpooned with an ordinary blunt stick or any piece of wood, cut with knives, or taken with a bug-scoop. Other kinds of salmon, with very highly colored red flesh, are found in the larger streams on the island. We received here, for a mere nothing, a welcome change from the preserved food with which we had long ago become thoroughly disgusted.

COURTESY OF THE ALASKA COMMERCIAL COMPANY.—Beside that, the expedition received, as a gift from the Alaska Company, fat and splendid beeves, milk, and other refreshments, and I cannot sufficiently praise the good-will we experienced, as well from the Russian official, Mr. Greboritsky, an energetic and skillful student of natural history, as from the employés of the Alaska Company, and all other persons living on the island with whom we came in contact. [*Translation closes.*]

TABLE SUBMITTED BY THE AUTHOR, SHOWING THE "CATCH" ON THE COMMANDER ISLANDS.—In order to show the relative importance of the seal business on these Russian islands as compared with that of our own, I append the following exhibit of what has been done there since 1862. Professor Nordenskiöld does not seem to have gathered the information; he has, however, in his forthcoming *Vegás-färden*, embodied my figures:

Fur-seal skins taken for shipment from the Commander islands.

Years.	Number of seals taken.	Years.	Number of seals taken.	Years.	Number of seals taken.
1862	4,000	1869	24,000	1876	26,960
1863	4,500	1870	24,000	1877	21,532
1864	5,000	1871	8,614	1878	31,340
1865	4,000	1872	29,318	1879	42,752
1866	4,000	1873	30,396	1880	48,504
1867	4,000	1874	31,272		
1868	12,000	1875	36,274	Total, 1862 to 1880	387,462

BERING'S DISASTER.—The miserable ending to Bering's voyage of discovery in 1741–'42 had one redeeming clause—the shipwreck of the commander's vessel gave Steller his opportunity of making the fur-seal rookeries known to man for the first time, in either history or legend. As the prime factor of this entertaining addition to our knowledge, I think a short recital of the misfortunes of the Russian expedition interesting in the relation which it bears to the subject of my discussion.

HOMEWARD VOYAGE AND SHIPWRECK.—In 1741, June 4, Bering and Tschericov set sail from Petropavlovsky, in two small vessels, the "St. Peter" and the "St. Paul"; they proceeded as low as the 50° latitude, then decided to steer eastward for the reported American continent. On the 20th the rude ships were separated by a storm, and the two commanders never met in life again. Sunday, 18th July, Bering, while waiting for the other vessel, drifted on our northwest coast. He passed some six weeks in the new waters of his discovery, when by the 3d of September

a violent storm occurred and lasted seven days, driving them back to 48° 18′ north latitude, and into the lonely wastes of the vast Pacific. The scurvy began to appear on board; hardly a day passed without the death of one of the crew, and men enough in health were scarcely left to manage the ship. A return to Kamtchatka was resolved upon. Bering became morose and seldom appeared on deck, and the second in command, Stoörman Vachtel, directed the dreary cruise. After regaining the land, and burying a sailor named Shumagin on one of the group of Alaskan islets that bear this title to-day, and discovering and naming several Aleutian capes and islands, they saw two, which by an unfortunate blunder, they took for the Kuriles and adjacent to Kamtchatka; thus they erred sadly in their reckoning and sailed out on a point of false departure. In vain they craned their necks for the land—the shore of Kamtchatka refused to rise, and soon there was no hope of making a port in that goal so late in the year. The wonderful discipline of the Russian sailors was strikingly exhibited at this stage of the luckless voyage; notwithstanding their fearfully debilitated condition, and suffering from cold and wet, they obeyed orders and attended to their duties. We are told by Steller that the scurvy had already so far advanced that the steersman was conducted to the helm by two other invalids who happened to have the use of their legs, and who supported him under the arms; when he could no longer steer from suffering, he was succeeded by another no better able to execute the labor than himself; thus did the unhappy crew waste away into death; they were obliged to carry few sails, for they had not hands to reef them, and such as they had were nearly worn out, and in this case they could not be replaced from the stores, since there were no seamen strong enough on the ship to bend new ones to the yards and booms.

Soon rain was followed by snow, the nights grew longer and darker, and now they lived in dreadful anticipation of shipwreck; the fresh water diminished, and the labor of working the vessel became too severe for the few who were able to be about. From the 1st to the 4th November the ship had lain as a log on the ocean, helpless, and drifting at the sport of the wind and the waves. Then, again, they managed to control her, and set her course anew to the westward, without knowing absolutely anything as to where they were. In a few hours after, the joy of the distressed crew can be better imagined than described, for they saw the tops of high hills, still at a great distance ahead, covered with snow. As they drew nearer, night came upon them, and they judged best, therefore, to keep out, "off and on," until daybreak, so as to avoid the risk of wrecking themselves in the dark. In the morning they found that the rigging on the starboard side of the vessel was giving way, and the craft could not be managed much longer; that the water was very low, and the sickness increasing frightfully. The humidity of the climate was now succeeded by intense cold; life was well-nigh insupportable on ship then, and they determined to make for the land to save their lives, and, if possible, safely beach the "St. Peter".

The small sails were alone set; the wind was north; the depth of water 36 fathoms, sand bottom; two hours after they decreased it to 12; they now contrived to get over an anchor and run it at three-quarters of a cable's length; at 6 p. m. the hawser parted, and tremendous waves bore the helpless boat through the darkness and the storm, in to the coast, where soon she struck twice upon a rocky reef. Yet, in a moment after, they had 5 fathoms of water; a second anchor was thrown out and again the tackle parted; and, while in the energy of wild despair, they were preparing a third bower, a huge combing wave lifted that ark of misery, of superlative human suffering, safely and sheer over the reef, where in an instant she lay in calm water; the last anchor was put out, and the voyage of Bering came to an end, in 4 fathoms of water, over a sandy bottom, and only 300 fathoms from the beach. In the morning they found that they had drifted in here at the only spot where they possibly could have been carried over a ridge of rocks—that 20 fathoms distance right or left of their course, high basaltic bowlders and jagged pinnacles arose from the sea, against which they must have perished, had they struck during the fury of the gale and the darkness of the night.

THE EXHAUSTED RUSSIANS LAND.—Winter was now at hand; the crew, worn down with excitement, fatigue, and disease, reposed until midday, then lowered the boat; on the 6th November, Vachtel landed. They found the country barren and covered with snow. A clear stream of excellent water, not frozen, ran down from the hills to the shore; no trees or even shrubs were visible; firewood was driftwood on the beaches, so it had to be dug from under snow and icy fetters; shelter there was none, but they found near the open mouth of the little creek some sand walls, and deep wind-scraped hollows therein; these they cleared out and covered over with the ship's sails, to serve as a temporary shelter until they could build a wooden cabin; on the 8th November, the sand caves were prepared and the sick taken from the "St. Peter" and placed in them. Steller, the undaunted surgeon and naturalist, tells us that some of them died on being brought up from the ward-room below, others in the boat, and others soon after landing—the violent change of air snapped the slender threads remaining that bound them to this life; the bodies of the dead were instantly attacked by foxes, *Vulpes lagopus*, which came down suddenly to their strange prey without fear, apparently never having seen man; and were so bold that they actually mangled the feet and heads of the dead Russians ere the living could bury them.

MELANCHOLY INCIDENTS OF BERING'S DEATH.—On the 9th November, Bering himself was brought ashore, well shielded from the atmosphere and put into a sand hollow all by himself; of the officers, he, alone, died; his age and temperament inclined him to inactivity; he became delirious and cunning, taking his friends to be his enemies, some of whom, including Steller, could not come into his presence during his last illness; he used to amuse himself by detaching the sand from the sides of the place where he lay, so that he soon covered his lower

limbs entirely with it; those who attended him cleared it away at first, but finally he would not suffer them to do so, and showed impotent anger while they made the attempt; when he died at last, just 30 days after being brought ashore, he was almost buried by his own hands in the sandy bed of his death; they interred him near the spot, and the island is his monument, and also the imperishable record of his singular end.

Steller says that those who survived were those who resisted the desire to take to their beds, and whose natural flow of humor kept them sanguine and cheerful; the officers who had to be on deck and up at all hours looking after everything, were never taken down seriously, though they all were attacked by scurvy. Not long after Bering died, the "St. Peter" was wrecked by a fearful southeaster; her cable parted, and she came ashore near by the Russian encampment, during the night of December 29; in the morning she was found buried 8 or 10 feet in the sand, completely shattered; this was a crushing blow to the survivors—they had counted alone on getting back to Petropavlovsky by her instrumentality.

ESCAPE OF THE SURVIVORS.—The survivors, 45 souls, lived through the winter on the flesh of sea-lions, the *Rhytina* or Manatee, and thus saved their flour, etc.; they managed to build a little shallop out of the remains of the "St. Peter", in which they left this scene of the most extraordinary shipwreck and deliverance in our annals, on the 16th of August, 1742, and reached Petropavlovsky in safety on the 27th.

THE NERVE AND COURAGE OF STELLER.—Steller here saw the fur-seal breeding, first of all civilized men, in the waters north of the equator; and here he made the earliest record of its existence as an animal in the naturanst's lexicon; the rookery to and from which he used to journey in observation was nearly nine miles from the camp; and, considering his physical condition—he was never a robust man—the fatigue that his excursions must have engendered would have deterred most men from making a second trip to the "laasbustchie" of Bering island.

As our intelligence and appreciation of these valuable interests of natural science, and of commerce peculiar to the Pribylov group of Alaska and the Commander islands of Russia, increases, so does our regard and esteem for Steller advance; since he was the surgeon of that ill-fated expedition, his duties in this direction must have consumed nearly all of his time in the most imperative manner; what he did do, therefore, in the line of natural history, is still the more to be commended.

23. ST. MATTHEW ISLAND, AND ITS RELATION TO ST. PAUL.

POLAR BEARS ON THE PRIBYLOV GROUP.—When the fur-seals first took possession of the Pribylov group, they undoubtedly found polar bears thereon; at least, I firmly believe that if the bears were not about when they first arrived, it was not due to the inability of these creatures to get there in limited numbers, but rather to the fact that nothing on the islands invited them, or was as attractive as the field to the north; for this animal cannot endure with comfort a temperature which even the fur-seal will submit to.

Provided with more walrus meat than he knew what to do with, the polar bear, in my opinion, has never cared much for the seal-islands; but the natives have seen them here on St. Paul, and old men have their bear stories, which they tell to the rising generation. The last "medvait" killed on St. Paul island was shot at Boga Slov, in 1848; none have ever come down since, and very few were there before, but those few evidently originated at and made St. Matthew island their point of departure. Hence, I desire to notice this hitherto unexplored spot, standing, as it does, 200 miles to the northward of St. Paul; and which, until Lieutenant Maynard and myself, in 1874, surveyed and walked over its entire coast-line, had not been trodden by white men or by natives, since that dismal record made by a party of five Russians and seven Aleuts, who passed the winter of 1810-'11 on it; and who were so stricken down with scurvy as to cause the death of all the Russians save one, while the rest barely recovered, and left early the following year. We found the ruins of the huts, which had been occupied by this unfortunate and discomfited party of fur-hunters, who were landed there to secure polar bears in the depth of winter, when such ursine coats should be the finest.

TOPOGRAPHY OF ST. MATTHEW ISLAND.—St. Matthew island is a queer, jagged, straggling reach of bluffs and headlands, connected by bars and low-land spits; the former, seen at a little distance out at sea, resemble half a dozen distinct islands; the extreme length is twenty-two miles, and it is exceedingly narrow in proportion. Hall island is a small one that lies west from it, separated from it by a strait (Sarichev) less than three miles in width; while the only other outlying land is a sharp, jagged pinnacle rock, rearing itself over 1,000 feet abruptly from the sea, standing five miles south of Sugar-Loaf cone, on the main island. From the cleft and blackened fissure near the summit of this serrated pinnacle rock, volcanic fire and puffs of black smoke have been recorded as issuing.

Our first landing, early in the morning of August 5, was at the slope of Cub hill, near cape Upright, the easternmost point of the island. The air coming out from the northwest was cold and chilly, and snow and ice were on the hill-sides and in the gullies; the sloping sides and summits of the hills were of a grayish, russet tinge, with deep green swale flats running down into the low lands, which are there more intensely green and warmer in tone. The pebble bar, formed by the sea between cape Upright and Waterfall head, is covered with a deep stratum of glacial drift, carried down from the flanks of Polar and Cub hills, and extending over two miles of this water-front to the westward, where it is met by a similar washing from that quarter. Back and in the center of this neck are several small lakes and lagoons without fish; but, emptying into them are a number of clear, lively

brooks, in which were salmon parr of fine quality. The little lakes undoubtedly receive them; hence, they were land-locked salmon. A luxuriant growth of thick moss and grass, interspersed, existed almost everywhere on the lowest ground, and occasionally strange dome-like piles of peat were lifted four or five feet above the marshy swale, and appeared so remarkably like abandoned barrabaras that we repeatedly turned from our course personally to satisfy ourselves to the contrary.

CHANGING VEGETATION.—As these low lands ascend to the tops of the hills, the vegetation changes rapidly to a simple coat of cryptogamic gray and light russet, with a slippery slide for the foot wherever a steep flight or climbing was made; water oozes and trickles everywhere under foot, since an exhalation of frost is in progress all the time. Sometimes the swales rise and cross the hill-summits to the valleys again, without any interruption in their wet, swampy character.

LAIRS OF THE POLAR BEAR.—Here, on the highest points, where no moss ever grows, and nothing but a fine porphyritic shingle slides and rattles beneath our tread, are bear-roads leading from nest to nest, or lairs, which they have scooped out of frost-splintered rocks on the hill-sides, and where the she-bears undoubtedly bring forth their young; but it is not plain, because we saw them only sleeping, at this season of the year, on the lower ground, seemingly to delight in stretching themselves and rolling over the rankest vegetation.

GLACIAL EXHIBITS.—The action of ice in rounding down and grinding hills, chipping bluffs, and chiseling everywhere, carrying the soil and *débris* into depressions and valleys, is most beautifully exhibited on St. Matthew. The hills at the foot of Sugar Loaf cone are bare and literally polished by ice-sheets and slides of melting snow; the rocks and soil from the summits and slopes are carried down and "dumped", as it were, in numberless little heaps at the base, so that the foot of the hill, and out on the plain around, strongly put us in mind of those refuse piles which are dropped over the commons or dumping-grounds of a city. Nowhere can the work of ice be seen to better advantage than here, aided and abetted as it undoubtedly is by the power of wind, especially with regard to the chiseling action of frost on the faces of the ringing metallic porphyry cliffs.

EXTENSIVE FLORA.—The flora here is as extensive as on the seal-islands, 200 miles to the southward, but the species of *gramma* are not near so varied; indeed, there is very little grass around about. Wherever there is soil it seems to be converted by the abundant moisture into a swale or swamp, over which we traveled as on a quaking water-bed; but on the rounded hill-tops and ridge summits the wind-rubbed and frost-splintered shingle makes good walking; both of these climatic agencies evidently have an annual iron grip on the island.

FANTASTIC CLEAVAGE OF THE ROCKS.—The west end of St. Matthew differs materially from the east; the fantastic weathering of the rocks at Cathedral point, Hall island, will strike the eye of a most casual observer as the ship enters the straits going south. This eastern wall of that point looms up from the water like a row of immense cedar-tree trunks; the scaling off of the basaltic porphyry and growth of yellowish-green and red mossy lichens made the effect most real, while a vast bank of fog lying just overhead seemed to shut out from our vision the foliage and branches that should be above. This north cape of Hall island changes when approached, with every mile's distance, to a new and altogether characteristic profile.

Our visit at the west end of the island of St. Matthew was, geologically speaking, the most interesting experience I have ever had in Alaska. The geologist who may desire to study the greatest variety of igneous forms *in situ*, within a short and easy radius, can do no better than make his survey here; the rocks are not only varied by mineral colors, together with a fantastic arrangement of basalt and porphyry, but are rich and elegant in their tinting by the profuse growth of lichens, brown, yellow, green, and bronze.

HUNDREDS OF POLAR BEARS.—An old Russian record prepared us, in landing, to find bears here; but it did not cause us to be equal to the sight we saw, for we met bears—yea hundreds of them. I was going to say that I saw bears here as I had seen seals to the south, but that, of course, will not do, unless as a mere figure of speech. During the nine days that we were surveying this island, we never were one moment, while on land, out of sight of a bear or bears; their white forms in the distance always answered to our search, though they ran from our immediate presence with the greatest celerity, traveling in a swift, shambling gallop, or trotting off like elephants. Whether due to the fact that they were gorged with food, or that the warmer weather of summer subdued their temper, we never could coax one of these animals to show fight. Its first impulse and its last one, while within our influence, was flight—males, females, and cubs, all, when surprised by us, rushing with one accord right, left, and in every direction, over the hills and away.

After shooting half a dozen, we destroyed no more, for we speedily found that we had made their acquaintance at the height of their shedding season; and, their snowy and highly prized winter-dress was a very different article from the dingy, saffron-colored, grayish fur that was flying like downy feathers in the wind, whenever rubbed or pulled by our hands. They never roared, or uttered any sound whatever, even when shot or wounded.

EXCELLENCE OF THE FLESH.—Let me testify at this moment to the excellent quality of polar-bear steak; we gave it a fair trial, and it conquered all our prejudices—mine in especial, because I had been victimized with black-bear meat many years before, in British Columbia.

IMMENSE SIZE OF THE POLAR BEAR.—These bears impressed me greatly by their enormous size. One, shot by Lieutenant Maynard, measured exactly 8 feet from the tip of its nose to its excessively short tail, and could not have weighed less than 1,000 or 1,200 pounds; it had a girth of 24 inches around the muscles of the forearm

alone, at the place where the skin was removed and the foot cut off just back of the carpal joint, that corresponds to our wrist. This animal was very fat, and its head was scarred all over with wounds, evidently received in fighting with its kind. No worms were found in the intestines and stomach; the liver was speckled with light grayish-green dots, and normal. Many of them were seen grazing and rooting like hogs on a common.

FITFUL SLEEP OF BEARS.—They sleep soundly, but fitfully, rolling their heavy arms and legs about as they doze; for naps they seem to prefer little grassy depressions on the sunny hill-sides and along the numerous water-courses; and their paths were broad and well beaten all over the island. We could not have observed less than 250 or 300 of these animals while we were there; at one landing on Hall island there were 16, scampering up and off from the approach of the ship's boat, at one sweep of our eyes.

FUR-SEALS CANNOT LAND HERE.—The chief attraction to these bears, undoubtedly, at St. Matthew, is the walrus herds; and the island's special adaptation by its position to a possibility of its ever being resorted to by the fur-seal, was the reason of my visit; and, the result of my careful examination shows conclusively that the character of the gravel spits and necks which are the only landing-grounds offered, is such as not to be fit for the reception of breeding-seals, as they would be speedily converted by them into a sheet of mud and slime; and there is no other ground presented save at the base of cliffs everywhere rising up from the sea. Seals, also, if they could land here independent of this polar-bear scourge, which owns and controls St. Matthew, would find a climate that keeps snow and ice on the beaches until late in June, and still later; hence, I am well satisfied that the fur-seals have never visited this desolate land, nor will they ever rest upon it.*

24. DIGEST OF THE DATA IN REGARD TO THE FUR-SEAL ROOKERIES OF THE SOUTH ATLANTIC AND PACIFIC, AND NUMBER OF SKINS TAKEN THEREFROM.

DIFFICULTY OF FINDING CREDIBLE RECORDS.—Before I introduce the reader to this subject, I desire to call his attention to the source from which nearly all the information which we have touching it is derived. It comes from the verbal and written statements of whalers and other sea-faring men. The great difficulty which faces me as I attempt to make up this digest from such authority, is the fact that I know the failing of sailors too well—am too conversant with their habits of loose and positively erroneous narration. For instance, as an illustration of this trouble: suppose A had taken a large cargo of fur-seal skins from the Crozette islands some time in 1820–'25, and when on the homeward stretch had been met at sea by B, another whaler or sealer; A would invariably tell B, in answer to queries as to where he got his catch, that he secured the seals at any other island far away from the real source of supply, in order that he might turn B aside, and have a clear field, and a full ship at the Crozettes again, when he should discharge at home and return. The story, however, would probably get into circulation, and into print, perhaps; and to-day is misleading us, just as it did B long ago.

SCANTY RECORDS.—If anybody doubts the correctness of my statement, made in the prefatory words of this monograph, to wit, that, though a sealing fleet of hundreds of vessels and thousands of men had repaired to the rookeries of the southern oceans, and had annually returned laden with the skins of the *Arctocephalus*, still not a definite line as to the true result, *i. e.*, the number of skins taken from those great Antarctic breeding-grounds, can be found in any writing, let him turn to the laborious work of Allen, who, for eight or nine long years, has ransacked the writings and the musty records of a century back; and see in his history of the North American pinnipeds the pitiful sum of knowledge which he has gathered in regard to the subject.† Prior to the tedious research and publication just referred to, in looking toward the same end, I gathered substantially as much information in the *Encyclopædia Britannica*, and in Hamilton's *Amphibious Mammalia*.‡ But the amount of this information is so abortive and faulty that I hesitate to reprint it here; yet, perhaps, its republication, together with the equally brief and indefinite compilation of Allen, may draw out from some unexpected quarter further knowledge. Hence, I submit the following:

DESTRUCTION OF THE FUR-SEALS FOR THEIR PELTRIES.

The value of the peltries of the fur-seal has led to wholesale destruction, amounting, at some localities, almost to extermination. The traffic in their skins appears to have begun toward the end of the last century. Captain Fanning, of the ship Betsey, of New York, obtained a full cargo of choice fur-seal skins at the island of Masafuera, on the coast of Chili, in 1798, which he took to the Canton market. Captain Fanning states that on leaving the island, after procuring his cargo, he estimated there were still left on the island between 500,000 and 700,000 fur-seals, and adds that subsequently little less than a million of fur-seal skins were taken at the island of Masafuera alone,§ a small islet of not over twenty-five miles in circumference, and shipped to Canton.‖ Captain Scammon states that the sealing-fleet off the coast of Chili, in 1801, amounted to thirty vessels, many of which were ships of the larger class, and nearly all carried the American flag. Notwithstanding this great slaughter, it appears that fur-seals continued to exist there as late as 1815, when Captain Fanning again obtained them at this island.¶

*This survey made by Lieutenant Maynard and myself is the first careful exploration of the island; the only work hitherto done was the approximate charting of its coast from the decks of Cook's and Billings' and Bering's vessels. Maynard and myself made a detailed plotting of the island, and gave a copy to the United States Coast Survey in August, 1874.

†Allen: *History North American Pinnipeds*, 1880, pp. 229, 230.

‡Edinburgh, 1839.

§Fanning: *Voyages to the South Sea*, etc., pp. 117, 118. Allen: *North American Pinnipeds*

‖*Ib.*, p. 364.

¶*Ib.*, p. 299.

In the year 1800 the fur-seal business appears to have been at its height at the Georgian islands, where, in the single season, 112,000 fur-seals are reported to have been taken, of which 57,000 were secured by a single American vessel (the Aspasia, under Captain Fanning). Vancouver, at about this date, reported the existence of large numbers of fur-seals on the southwest coast of New Holland. Attention was at once turned to this new field, and in 1804 the brig Union, of New York, Capt. Isaac Pendleton, visited this part of the Australian coast, but not finding these animals there in satisfactory numbers, repaired to Border's island, where he secured only part of a cargo (14,000 skins), owing to the lateness of the season. Later 60,000 were obtained at Antipodes island. About 1806 the American ship Catharine, of New York (Capt. H. Fanning), visited the Crozette islands, where they landed, and found vast numbers of fur-seals, but obtained their cargo from Prince Edward island, situated a few hundred miles southeast of the cape of Good Hope, where other vessels the same year obtained full cargoes.

In 1830 the supply of fur-seals in the southern seas had so greatly decreased, that the vessels engaged in this enterprise "generally made losing voyages, from the fact that those places which were the resort of seals", says Capt. Benjamin Pendleton, "had been abandoned by them, or cut off from them", so that the discovery of new sealing-grounds was needed. Undiscovered resorts were believed to exist, from the fact that large numbers of fur-seals were seen while cruising far out at sea, which must repair once a year to some favorite breeding-station.*

Captain Weddell states, that during the years 1820 and 1821 over 300,000 fur-seals were taken at the South Shetland islands alone, and that at the end of the second year the species had there become almost exterminated. In addition to the number killed for their furs, he estimates that not less than 100,000 newly-born young died in consequence of the destruction of their mothers.

So indiscriminate was the slaughter, that whenever a seal reached the beach, of whatever denomination, it was immediately killed. Mr. Scott states, on the authority of Mr. Morris, an experienced sealer, that a like indiscriminate killing was carried on at Antipodes island, off the coast of New South Wales, from which island alone not less than 400,000 skins were obtained during the years 1814 and 1815. A single ship is said to have taken home 100,000 in bulk, which, through lack of care in curing, spoiled on the way, and on the arrival of the ship in London the skins were dug out of the hold and sold as manure! At about the same time there was a similar wasteful and indiscriminate slaughter of fur-seals at the Aleutian islands, where for some years they were killed at the rate of 200,000 a year, glutting the market to such an extent that the skins did not bring enough to defray the expenses of transportation. Later, the destruction of fur-seals at these islands was placed under rigid restrictions (see *infra* the general history of the northern fur-seal), in consequence of which undue decrease has been wisely prevented. But nowhere else has there been a systematic protection of the fur-seals, or any measures taken to prevent wasteful or undue destruction.

THE SUBJECT IN 1873.—The above embodies Allen's gleaning of all that he could learn touching the subject. In 1873 I published the following:

The government of Buenos Ayres has, from the first, protected and cared for a small rookery of fur-seals under the bluffs at Cabo Corrientes, on its coast, where some 5,000 to 8,000 are annually taken, but the seals here have no hauling-grounds like those on St. Paul; they are taken with much labor under the high cliffs of this portion of the coast. This is the only government aid and care that the seals have ever received outside of Bering sea. The following extract shows the way in which the fur-seals of the South came into notice:

"Soon after Captain Cook's voyage in the Resolution, performed in 1771, he presented an official report concerning New Georgia, in which he gave an account of the great number of elephant-seals and fur-seals which he had found on the shores of that island. This induced several enterprising merchants to fit out vessels to take them; the former for their oil, the latter for their skins. Captain Weddell states that he had been credibly informed, that during a period of about fifty years, not less than 20,000 tons of oil were procured annually from this spot alone for the London market, which, at a moderate price, would yield about £1,000,000 a year.

"Seal-skins are very much used in their raw state as articles of apparel by the natives of the polar zones; when tanned, they are used extensively in making shoes; and the Eskimo have a process by which they make them water-proof (?), so that, according to Scoresby, the jackets and trousers made of them by these people are in great request among the whale-fishers for preserving them from oil and wet. But the skins are not only used in this raw and tanned state as leather; on account of their silky and downy covering they constitute still more important articles connected with the fur-trade. Thus considered, seal-skins are of two kinds, which may be distinguished as *hair*-skins and *fur*-skins. The former are used as clothing and ornament by the Russians, Chinese, and other nations, and the latter yield a fur which we believe exceeds in value all others which have been brought into the market. Many seals supply nothing but hair, while others in different proportions produce both the hair and, underneath it, soft and downy fur. The majority, we believe, are to be considered merely as hair-skins, similar to the bear or sable, and of these some are excellent of their kind, and much prized."—(Hamilton: *Amphibious Mammalia*, Edinburgh, 1839.)

It may be considered superfluous to read a lecture to the trader upon a matter so nearly touching his own interest, and yet there is one point, at the same time, which forms so essential a part of my subject, that I cannot withhold a word or two. These valuable creatures (fur-seals) have often been found frequenting some sterile islands in innumerable multitudes. By way of illustration, I shall refer only to the fur-seal as occurring in South Shetland. On this barren spot their numbers were such that it has been estimated that it could have continued permanently to furnish a return of 100,000 furs a year; which, to say nothing of the public benefit, would have yielded annually a very handsome sum to the adventurers. But what do these men do? In two short years, 1821 and 1822, so great is the rush that they destroy 320,000. They killed all, and spared none. The moment an animal landed, though big with young, it was destroyed. Those on shore were likewise immediately dispatched, though the cubs were but a day old. These, of course, all died, their number, at the lowest calculation, exceeding 100,000. No wonder, then, at the end of the second year, the animals in this locality were nearly extinct. So is it in other localities, and so with other seals, and so with the oil-seals, and so with the whale itself, every addition only making bad worse. All this might easily be prevented by a little less barbarous and revolting cruelty, and by a little more *enlightened* selfishness.

With regard to this seal-fishery of the south, the English and Americans have exclusively divided it between them, and with very great profits. It has lately been stated (1839) that they together employ not fewer than sixty vessels in the trade, of from 250 to 300 tons burden. These vessels are strongly built, and have each six boats, like those of the whalers, together with a small vessel of 40 tons, which is put in requisition when they reach the scene of their operations. The crew consists of about 24 hands, their object being to select a fixed locality from which to make their various *bateaux*. Thus it is very common for the ship to be moored in some secure bay and be partially unrigged, while at the same time the furnaces, try-pots, etc., required for making the oil are placed on shore. The little cutter is then rigged and manned with about half the crew, who sail about the neighboring islands and send a few men here and there on shore, where they may see seals or wish to watch for them. The campaign frequently lasts for three years, and in the midst of unheard-of privations and dangers. Some of the crew are sometimes left on distant, barren spots, the others being driven off by storms. They are left to perish or drag out for years a most precarious and wretched existence.†

*Fanning: *Voyages*, p. 487.

†Robert Hamilton: *Amphibious Mammalia*, Edinburgh, 1839.

With regard to the manner in which fur-sealing was carried on then, we find in the *Encyclopædia Britannica* the following facts:

From about the year 1806 till 1823 an extensive trade was carried on in the South seas in procuring seal-skins. These were obtained in vast abundance by the first traders, and yielded a very large profit. The time was when cargoes of those skins yielded $5 or $6 a piece in China, and the present price in the English market averages from 30 to 50 shillings per skin. The number of skins brought off from Georgia cannot be estimated at fewer than 1,200,000; the island of Desolation has been equally productive, and, in addition to the vast sums of money which these creatures have yielded, it is calculated that several thousand tons of shipping have annually been employed in the traffic.*

EXTERMINATION, THE RESULT.—This gives a very fair idea of the manner in which the business was conducted in the South Pacific. How long would our sealing interests in Bering sea withstand the attacks of such a fleet of sixty vessels, carrying from twenty to thirty men each? Not over two seasons. The fact that these great southern rookeries withstood and paid for attacks of this extensive character during a period of more than twenty years, speaks eloquently of the millions upon millions that must have existed in the waters now almost deserted by them.

EARLY AUTHORITIES ON THE APPEARANCE OF THE FUR-SEAL.—Whenever I have followed the records made by navigators of any one of these several islands in the Antarctic, from whence hundreds of thousands of fur-seals are said to have been annually taken, I have never found anything in the line of circumstantial evidence of the fact. For instance, had any vast rookery, such as is the one at Northeast point, St. Paul island, been in existence at Masafuera or Juan Fernandez, when they were visited by William Dampier in 1683—by Wood-Rogers in 1709—in 1740 and 1767 by Anson and Carteret, surely the extraordinary spectacle must have provoked their attention and description. So far from hinting at any such congregation of massed seal-life on the land, they, on the contrary, have more to say in regard to the wild goats which they found there, with the single exception of Dampier. Those were the progeny of the original stock left on the islands by Spanish pirates, long before (1563–'66). I select these two islands for especial reference in this connection, because they had been well known to seamen before the hunting of the fur-seal was a recognized business, and described by them. According to the accounts of the sealers, they were the source of several of the largest cargoes of fur-seal skins that were ever taken from any one or two places south of the equator.

ANSON'S VOYAGE, 1740–'41.—The best description of Juan Fernandez written prior to the ravages of the seal-hunting fleet (1800–'13), is the personal account made of it by Richard Walter, the chaplain to Lord Anson's flagship, the "Centurion", who lived ashore there for three months, June to September, 1741. Anson's fleet of seven "caravels" was dispersed by a fearful storm in rounding the Horn, and the crews well-nigh exterminated by scurvy. Only four of the vessels succeeded in joining him here, which was the preordained rendezvous; and the ninety days in camp at Juan Fernandez were passed in recuperation of the men and refitting the shattered ships.

REMARKABLE PHYSICAL CONTRAST BETWEEN ARCTIC AND ANTARCTIC ROOKERIES.—I offer this description, by Chaplain Walter, of these celebrated southern sealing-grounds, as an interesting statement for comparison with that which I have given of the Pribylov group. Certainly the ultra difference in natural character between St. Paul and St. George at the north, and Crusoe's isle and Masafuera on the south, is strongly defined and remarkable. The ground-trailing, or creeping willow (*Salix reticulata*) of Bering sea is the only tree or shrub that the fur-seal can rub against on the Pribylov islands; but his southern brother is acquainted with the shadow of the cabbage palm. The following is a copy of Walter's picture, drawn from life, and it is a very graphic one:

DESCRIPTION OF JUAN FERNANDEZ.—However, on the 10th of June, in the afternoon, we got under the lee of the island, and kept ranging along it at about two miles' distance, in order to look out for the proper anchorage, which was described to be in a bay on the north side. Being now nearer in with the shore, we could discover that the broken, craggy precipices, which had appeared so unpromising at a distance, were far from barren, being in most places covered with woods, and that between them there were everywhere interspersed the finest valleys, covered with a most beautiful verdure, and watered with numerous streams and cascades, no valley of any kind being unprovided with its proper rill. * * * * At four in the morning our cutter was dispatched with our third lieutenant to find out the bay we were in search of, who returned again at noon with the boat laden with seals and grass, for although the island abounded with better vegetables, yet the boat's crew in their short stay had not met with them, and they well knew that even grass would prove a dainty, as, indeed, it was all soon eagerly devoured. [They were ill with scurvy.—H. W. E.] The seals, too, were considered as fresh provision, but as yet were not much admired, though they grew afterward into more repute, for what rendered them less valuable at this juncture was the prodigious quantity of excellent fish which the people aboard had taken during the absence of the boat.

The island of Juan Fernandez lies in the latitude of 33° 40′ south, and it is a hundred and ten leagues distant from the continent of Chili. It is said to have received its name from a Spaniard who formerly procured a grant of it, and resided there some time with a view of settling on it, but afterward abandoned it. * * * The island is of an irregular figure. * * * Its greatest extent is between four and five leagues, and its greatest breadth somewhere short of two leagues; the only safe anchorage at this island is at the north side.

The northern part of this island is composed of high, craggy hills, many of them inaccessible, though generally covered with trees; the soil of this part is loose and shallow, so that very large trees on the hills soon perish for want of root, and are then easily overturned. * * * The southern, or rather the southwestern part of the island, as distinguished in the plan, is widely different from the rest, being dry, stony, and destitute of trees, and very flat and low compared with the hills on the northern part. This part of the island is never frequented by ships, being surrounded by a steep shore, and having little or no fresh water, and besides it is exposed to the southerly wind, which generally blows here the whole year round, and on the winter solstice very hard.

*Elliott: *Condition of Affairs in Alaska*, p. 261.

VEGETATION OF JUAN FERNANDEZ.—The trees, of which the woods on the northern side of the island are composed, are most of them aromatics, and of many different sorts. There are none of them of a size to yield any considerable timber, except the myrtle trees, which are the largest on the island, and supplied us with all the timber we made use of; but even these would not work to a greater length than forty feet. The top of the myrtle tree is circular and appears as if it had been clipped by art; it bears on its bark an excrescence like moss, which in taste and smell resembles garlic, and was used by our people instead of it. We found here, too, the the plemento (palmetto ?) tree, and likewise the cabbage tree, though in no great plenty; and, beside, a great number of plants of various kinds which we were not botanists enough either to describe or attend to.

To the vegetables I have already mentioned, of which we made perpetual use, I must add that we found many acres of ground covered with oats and clover; there were also some few cabbage trees upon the island, as was observed before; but as they generally grew upon the precipices and in dangerous situations, and as it was necessary to cut a large tree for every single cabbage, this was a dainty that we were rarely enabled to indulge in.

The excellence of the climate and the looseness of the soil render this place extremely proper for all kinds of vegetation; for if the ground be anywhere accidentally turned up it was immediately overgrown with turnips and Sicilian radishes.

This may in general suffice as to the soil and vegetable productions of this place, but the face of the country, at least the north part of the island, is so extremely singular that I cannot avoid giving it a particular consideration. I have already taken notice of the wild, inhospitable air with which it first appeared to us, and the gradual improvement of this uncouth landscape as we drew nearer, till we were at last captivated by the numerous beauties we discovered on the shore. And I must now add that the inland parts of the island did in no way fall short of the sanguine prepossessions which we first entertained in their favor. For the woods which covered most of the steepest hills were free from all bushes and underwood, and afforded an easy passage through every part of them; and the irregularities of the hills and precipices in the northern part of the island necessarily traced out by their various combinations a great number of romantic valleys, most of which had a stream of the clearest water running through them, that tumbled in cascades at the bottom of the valley by the course of the neighboring hills, was at any time broken into a sharp, sudden descent; some particular spots occurred in those valleys where the shaded fragrance of the contiguous woods, the loftiness of the overhanging trees, and the transparency and frequent falls of the neighboring streams, presented scenes of such elegance and dignity as would be with difficulty rivaled by any other part of the globe. It is in this place, perhaps, that the simple productions of unassisted nature may be said to excel all the fictitious descriptions of the most animated imagination.

ANIMALS OF JUAN FERNANDEZ.—It remains now only that we speak of the animals and the provisions which we met with at this place. Former writers have related that this island abounded with vast numbers of goats; and their accounts are not to be questioned, this place being the usual haunt of the buccaneers and privateers who formerly frequented these seas. And there are two instances, one of a Mosquito Indian and the other of Alexander Selkirk, a Scotchman, who were left here by their respective ships, and lived alone upon this island for some years, and consequently were no strangers to its produce. Selkirk, who was the last, after a stay of between four and five years, was taken off the place (in 1708) by the Duke and Dutchess privateers of Bristol, as may be seen at large in the journal of their voyage. His manner of life, during his solitude, was in most particulars very remarkable; but there is one circumstance which he relates, which was so strangely verified by our own observations, that I cannot help reciting it. He tells us, among other things, that he often caught more goats than he wanted; he sometimes marked their ears and let them go. This was about thirty-two years before our arrival on this island. Now, it happened that the first goat killed by our people at their landing had its ears slit, whence we concluded that he had doubtless been formerly under the power of Selkirk. This was indeed an animal of most venerable aspect, dignified with an exceeding majestic beard, and with many other symptoms of antiquity. During our stay on the islands we met with others marked in the same manner, all the males being distinguished by an exuberance of beard and every other characteristic of extreme age.

But the great number of goats, which former writers describe to have been found upon this island, are at present very much diminished; as the Spaniards, being informed of the advantages which the buccaneers and privateers drew from the provisions which goats' flesh here furnished them with, have endeavored to extirpate the breed, thereby to deprive their enemies of this relief. For this purpose they have put on shore great numbers of large dogs who have increased apace and have destroyed all the goats in the accessible part of the country; so that there now remain only a few amongst the crags and precipices, where the dogs cannot follow them. These are divided into separate herds of twenty or thirty each, which inhabit distinct fastnesses, and never mingle with each other. By this means we found it extremely difficult to kill them; and yet we were so desirous of their flesh, which we all agreed much resembled venison, that we got knowledge, I believe, of all their herds, and it was conceived, by comparing their number together, that they scarcely exceeded two hundred upon the whole island. * * * These dogs, who are masters of all the accessible parts of the island, are of various kinds, some of them very large, and are multiplied to a prodigious degree. They sometimes came down to our habitations at night, and stole our provisions, and once or twice they set upon single persons; but, assistance being at hand, they were driven off without doing any mischief. As at present it is rare for goats to fall in their way, we conceived that they lived principally upon young seals; and, instead, some of our people had the curiosity to kill dogs, sometimes, and dress them, and it seemed to be agreed upon that they had a fishy taste.

SEALS AT JUAN FERNANDEZ.—Goats' flesh, as I have mentioned, being scarce, we rarely being able to kill above one a day, and our people growing tired of fish (which as I shall hereafter observe abound at this place), they at last condescended to eat seals, which by degrees they came to relish and called it lamb. The seal, numbers of which haunt this island, hath been so often mentioned by former writers, that it is unnecessary to say anything particular about them in this place. But there is another amphibious creature to be met with here, called a sea-lion, that bears some resemblance to a seal, though it is much larger. This, too, we eat under the denomination of beef; and as it is so extraordinary an animal, I conceive it well merits a particular description. [This is the southern sea-elephant, *Macrorhinus leoninus;* not the sea-lion, *Otaria jubata.*—H. W. E.] They are in size, when arrived at their full growth, from twelve to twenty feet in length, and from eight to fifteen in circumference. They are extremely fat, so that after having cut through the skin, which is about an inch in thickness, there is at least a foot of fat, before you can come at either lean or bones; and we experienced more than once that the fat of some of the largest afforded us a butt of oil. They are likewise very full of blood; for if they are deeply wounded in a dozen places, there will instantly gush out as many fountains of blood; spouting to a considerable distance; and to try what quantity of blood they contained, we shot one first and then cut its throat, and measuring the blood that came from him, we found that beside what remained in the vessels, which, to be sure, was considerable, we got at least two hogsheads (!). Their skins are covered with a short hair, of a light dun color, but their tails and their fins, which serve them for feet on shore, are almost black; their fins, or feet, are divided at the ends like fingers, and the web which joins them not reaching to the extremities, and each of these fingers is furnished with a nail. They have a distant resemblance to an overgrown seal, though in some particulars there is a manifest difference between them, especially in the males; these have a large trunk, or snout, hanging down five or six inches below the end of the upper jaw, which the females have not, and this renders the countenance of the male and the female

easy to be distinguished from each other, beside the males are of a much larger size. The form and the appearance of both the male and the female are very exactly represented in the nineteenth plate, only the disproportion of their size is not usually so great as is there exhibited; for the male is drawn from life after the largest of these animals, which was found upon the island; he was the master of the flock, and from his driving off the other males and keeping a great number of females to himself, he was by the seamen ludicrously styled the bashaw. These animals divide their time equally between the land and sea, continuing at sea all the summer, and coming on shore at the setting in of the winter, where they reside during that whole season. In this interval they engender and bring forth their young, and have generally two at a birth, which they suckle with their milk, they being at first about the size of a full-grown seal. During the time these sea-lions continue on shore they feed upon the grass and verdure which grows near the banks of the fresh-water streams; and when not employed in feeding, sleep in herds in the most miry places they can find out. As they seem to be of a very lethargic disposition, and are not easily awakened, each herd was observed to place some of their males at a distance, in the nature of sentinels, who never failed to alarm them whenever any one attempted to molest, or even to approach them; and they were very capable of alarming, even at a considerable distance; for the noise they make is very loud and of different kinds, sometimes grunting like hogs, and at other times snorting like horses in full vigor. They often, especially the males, have furious battles with each other, principally about their females; and we were one day extremely surprised at the sight of two animals, which at first appeared different from any of all we had observed, but on a nearer approach they proved to be two sea-lions, who had been goring each other with their teeth, and were covered over with blood; and the bashaw, above mentioned, who generally lay surrounded with a seraglio of females, which no other male dared to approach, had not acquired that envied pre-eminence without many bloody contests, of which the marks still remained in the numerous scars which were visible in every part of his body. We killed many of them for food, especially for their hearts and tongues, which we esteemed good eating, and preferable even to those of bullocks. In general shape there was no difficulty in killing them, for they were incapable either of escaping or of resisting, as their motion is the most unwieldy that can be conceived, their blubber, all the time they are moving, being agitated in huge waves under their skins. However, a sailor one day being carelessly employed in skinning a young sea-lion, the female from whence he had taken it came upon him unperceived, and getting his head in her mouth, she with her teeth scored his skull in notches in many places, and thereby wounded him so desperately that though all possible care was taken of him he died in a few days.

FEW BIRDS.—These are the principal animals which we found upon the island, for we saw but few birds, and those chiefly hawks, blackbirds, owls, and humming-birds. We saw not the pendella, which burrows in the ground, and which former writers have mentioned to be found here; but as we often met with their holes, we supposed that the dogs had destroyed them, as they have almost done the cats; for these were very numerous in Selkirk's time, but we saw not above one or two during our whole stay. However, the rats still keep their ground, and continue here in great numbers, and were very troublesome to us by infesting our tents nightly.

ABUNDANCE OF FISH.—But that which furnished us with the most delicious repasts at this island remains still to be described—this was the fish, with which the whole bay was most plentifully stored, and with the greatest variety, for we found here cod of a prodigious size, and by the report of some of our crew, who had been formerly employed in the Newfoundland fishery, not in less plenty than is to be met with on the banks of that island. We caught also cavallies, gropers, large breams, maids, silver fish, congers of a peculiar kind—above all, a black-fish, which we most esteemed, called by some, a chimney-sweeper, in shape resembling a carp. The beach, indeed, is everywhere so full of rocks and loose stones that there is no possibility of hauling the seine; but with hooks and lines we caught what numbers we pleased, so that a boat with two or three lines would return loaded with fish in about two or three hours' time. The only interruption we ever met with arose from the great quantities of dog-fish and large sharks which sometimes attended our boats and prevented our sport. Beside the fish we have already mentioned, we found here one delicacy in greater perfection, both as to size and flavor and quantity, than is, perhaps, to be met with in any other part of the world; this was sea cray-fish; they generally weighed eight or nine pounds apiece, were of a most excellent taste, and lay in such abundance near the water's edge that the boat-hooks often struck into them in putting the boat to and from the shore.

STRANGE CONTRAST IN SEALING-GROUNDS.—Thus ends Chaplain Walter's description of the plants, and the animals, and the fish of Juan Fernandez; and I quote him in full, because I wish to emphasize the decided difference in the temperament and constitution of the northern, or Alaskan, fur-seal from that of its southern relative, which seems to have repaired to Juan Fernandez and Masafuera in countless thousands, "millions," Dampier said, in 1683, to breed in a tropical climate, on an island infested by bands of wild dogs, and the waters surrounding alive with "large sharks"! Then, too, that the good prelate should have found fish so abundant where such multitudes of seals were aggregated, seems strange; and it also occurs rather odd to me that he should have rested content with Dampier's brief description of the fur-seal here, and passed the matter by, in the abrupt reference which he makes, declaring it superfluous to add more than "other writers" have spoken of.

THE ROOKERY OF MASAFUERA: A DESCRIPTION OF THE ISLET.—The island of Masafuera lies off the coast of Chili, in south latitude 33° 45′, west longitude 80° 46′, just west of Juan Fernandez, 93 miles; the surprising number of over 480,000 fur-seal skins are said to have been taken from it in a single season, some fifty years or so ago. Whether this immense aggregate was slain there or not, it is certain that no one rookery in all the South seas was of more importance. It is a high and mountainous volcanic islet, triangularly formed, and about 7 or 8 leagues in coast circuit. The general character of the island seems to be very much as I have indicated as characteristic of St. George, only that a luxuriant growth of exotic shrubbery is found thereon. On the north side of the island is a low point of land upon which the noted fur-seal rookery used to exist. "The seals," Carteret, in 1767, says, "were so numerous that I verily think if many thousands of them were killed in a night, they would not be missed in the morning; we were obliged to kill a noted number of them, as, when we walked the shore, they were continually running against us, making at the same time a most terrible noise. These animals yield excellent train-oil, and their hearts and plucks were very good eating, being in taste something like those of a hog, and their skins were covered with the finest fur I ever saw of the kind."

ANSON'S VISIT TO MASAFUERA.—Lord Anson sent one of his vessels over to Masafuera for the purpose of surveying it thoroughly, while he was lying at Juan Fernandez, refitting, June to September, 1740. Captain Saunders submitted substantially the following report, which Chaplain Walter indorses as valuable, inasmuch "as upon this

occasion the island of Masafuera was more particularly examined than, I dare say, it ever had been before, or, perhaps, ever will be again". He gives, in the succeeding language, the sum of the Anson survey:

The Spaniards have generally mentioned two islands under the name of Juan Fernandez, styling them the greater and the less; the greater being that island where we anchored, and the less being the island we are now describing, which, because it is more distant from the continent, they have distinguished by the name of Masa-Fuera. The Tryal sloop found that it bore from the greater Juan Fernandez W. by S., and was about twenty-two leagues distant. It is a much larger and better spot than has been generally reported; for former writers have represented it as a small barren rock, destitute of wood and water, and altogether inaccessible; whereas, our people found it was covered with trees, and that there were several fine falls of water pouring down its sides into the sea; they found, too, that there was a place where a ship might come to anchor on the north side of it; though, indeed, the anchorage is inconvenient, for the bank extends but a little way, is steep, too, and has very deep water upon it, so that you must come to an anchor very near the shore, and there lie exposed to all the winds but a southerly one; and, beside the inconvenience of the anchorage, there is, also, a reef of rocks running off from the eastern point of the island, about two miles in length, though there is little danger to be feared from them, because they are always to be seen by the seas breaking over them. This place has, at present, one advantage beyond the island of Juan Fernandez; for it abounds with goats, who, not being accustomed to be disturbed, were nowise shy or apprehensive till they had been frequently fired at. These animals reside here in great tranquillity, the Spaniards not having thought the island considerable enough to be frequented by their enemies, and have not, therefore, been solicitous to destroy the provisions upon it; so that no dogs have been hitherto set on shore there. Beside the goats, our people found there vast numbers of seals and sea-lions. And upon the whole they seemed to imagine that, though it was not the most eligible place for a ship to refresh at, yet, in case of necessity, it might afford some sort of shelter, and prove of considerable use, especially to a single ship, etc.

NEGLECT OF CHILI.—Chili has suffered these famous breeding-grounds of *Arctocephalus* to be ravaged and utterly eliminated; here she had perpetual interests worth many hundreds of thousands of dollars to her annually in the way of revenue, had they only been looked after and shielded from that wanton and mercenary destruction which has been visited upon them by sealers of all nations between 1806–1840. In 1717 the Spanish government revived and re-established the colony of Juan Fernandez on that island; but it was in the lapse of a few decades almost entirely ruined by an earthquake. During 1810 the Chilians gained their independence, and these two islands formed part of their possessions; in 1819 they established a sort of a Botany Bay on Juan Fernandez, and have had as many as 500 prisoners there at a time; it was found, however, to be too expensive, and when a mutiny, in 1835, placed the island in the hands of the convicts for a brief period, then the prisoners were all removed shortly afterward, and the island deserted, and remained so for forty-five or fifty years. At the present time the two islands, Fernandez and Masafuera, are leased by a Chilian merchant, who employs all the settlers in cutting wood, tending cattle, and, during the season, in sealing; the average catch is about 2,000 fur-seals annually.

VALUE OF THE ANSONIAN ACCOUNT JUST QUOTED.—The Ansonian description, thus quoted in much detail, is one that cannot fail to cause decided comment upon the marked physical differences under which the fur-seal thrives in the north on the islets of Bering sea, as *Callorhinus ursinus*, or in the south, as *Arctocephalus australis*, on Masafuera and Juan Fernandez. According to Walter, the size of these two subtropical islands is nearly in accord with the area which I found belonging to the Pribylov group; St. Paul being about the same superficial area of Juan Fernandez, with outlying rocks and islets alike peculiar to each; while St. George is a trifle larger, only, than the smaller Masafuera, with water bold and abrupt all around about them.

THE SUBTROPICAL ROOKERIES MERE ROCKY BREEDING BELTS.—The rookery sites of the fur-seal are not located by any writer on either island. I should judge from Walter's account that the entire desolate south shore of Juan Fernandez was a belt of cliff-bound breeding-grounds, where these animals laid as they do to-day under the bluffs on the Great Eastern rookery at St. George; and to which spot none of the Dampier or Anson voyagers resorted. Indeed, from all that I can learn of the physical structure of the islands to which the southern fur-seal repaired, the whole area presented suitable for these creatures to breed upon was of this character, save that of the Falkland islands; no such ground in general topography as St. Paul being known to the Antarctic, nor is it found elsewhere in the Arctic; but St. George is the common type of the southern seal-islands, as it is also typical of the entire Aleutian chain and Alaska generally.

STRANGE OMISSION OF CHAPLAIN WALTER.—The one queer thought in my mind relative to this lengthy visit of Anson to Juan Fernandez, is that the historian, from whom I have quoted so liberally, should not speak of the fur-seal; for, thirty-two years prior to his landing Captain Wood-Rogers, of the "Duke", a privateer, touched here to recruit, and found "Robinson Crusoe" Selkirk in lonely possession; that sailor left with Rogers, February 12, 1709, and he gave quite a story of his discovery of the seals, which is related by the captain. Curiously enough, according to Selkirk, the time when the fur-seal hauls out to breed on Juan Fernandez is that season of the year when Anson was there. Wood-Rogers reports him as saying, "Toward the end of the month of June these animals come on shore to bring forth their young and remain to the end of September, without stirring from the spot and without taking any kind of nourishment." (Kerr: *Collection of Voyages:* vol. xi.)

NUMBERS OF DEADLY ENEMIES THERE: SHARKS.—The time of breeding, therefore, is about the same as in Bering sea. Also, in this connection, Commodore Byron, who came, in his voyage round the world, to Masafuera in 1765, seeking wood and water, says:

Sunday, April 28, 1765; * * * there was, however, another species of danger here to which our cork (surf) jackets afforded us no defense, for the sea abounded with sharks of an enormous size, which, when they saw a man in the water, would dart into the very surf

to seize him. Our people, however, happily escaped them, though they were many times very near; one of them, which was upward of 20 feet long, came close to one of the boats that was watering, and having seized a large seal instantly devoured it at a mouthful, and I, myself, saw another of about the same size do the same thing under the ship's stern. (Hawksworth: *Voyages:* London, 1773; vol. i, pp. 87–88.)

No other mention of seals is made by him here at Masafuera.

THE VOYAGE OF DAMPIER.—Fifty-seven years prior to Chaplain Walter's inspection and description of Juan Ferdandez, Capt. William Dampier stopped here, also, to wood and to water, and to rally his crew from scurvy; he was making a "New Voyage Round the World", sailing from England; he passed two weeks there in these exercises of recuperation and refitting. The justly celebrated buccaneer delivers himself in this terse strain:

These [seals] at *John Fernandos* have fine thick short Furre; the like I have not taken notice of any where but in these Seas. Here are always thousands, I might possibly say millions of them, either sitting on the Bays, or going and coming in the sea round the Island, which is full of them (as they lie at the top of the Water playing and sunning themselves) for a mile or two from the shore. When they come out from the Sea they bleat like Sheep for their young; and though they pass through hundreds of other's young ones before they come to their own, yet they will not suffer any of them to suck. The young ones are like Puppies and lie much ashore, but when beaten by any of us, they as well as the old ones will make toward the Sea, and swim very swift and nimble; though on shore they lie very sluggishly, and will not go out of our way unless we beat them, but snap at us. A blow on the Nose soon kills them. Large Ships might here load themselves with Seal Skins and Trane oyl; for they are extraordinary fat. (Dampier: *A New Voyage Round the World*, 1683; vth edition, revised, 1703; vol. i, pp. 88, 90.)

DAMPIER, NOT COOK, FIRST TO NOTE THE FUR-SEAL.—This account of Dampier will be instantly recognized, as far as he speaks of their habits, as an exact portrait of a breeding-rookery of the fur-seal. It is painfully brief, however; but it antedates Steller's contribution to the life and habits of the *Callorhinus* some 60 years; and is a hundred years nearly in advance of Captain Cook's mention of the same subject on the South Georgian (1771) and the Falkland islands (1774). He, therefore, and not Cook, deserves the credit of being the first man to call the attention of the civilized world to the value and the numbers of the fur-seal as it existed in southern waters, while Steller enjoys the same reputation with respect to those of the north.*

But, after searching through scores of antique traveler's volumes, and reading the musty records through and through—after extended personal intercourse with several of the very men who were active in fur-sealing throughout the Antarctic forty years ago, I have nothing but a mass of disjointed and conflicting data to show as to the real number of fur-seals slain in the waters south of the equator; while the record made by these men of the life and habit of *Arctocephalus australis* is that odd medley of fact and fiction, which destroys the value of the one and the romance of the other.

THE FALKLAND ISLANDS: THEIR DISCOVERY.—Captain John Davies, an Englishman, and a companion of Sir Thomas Cavendish, who made a privateersman's voyage to the South seas in 1592, was the first person who saw the Falkland islands. In 1594, Sir Richard Hawkins landed upon them and called them in honor of his queen and himself, "Hawkins' Maiden-land"; he said nothing about seals. In 1598 they were seen by a Dutch squadron, Verhagen, and Sebald de Wert commanding; they touched, and, ignorant of prior discovery, named them "Sebald's Verhagen, and Sebald de Wert commanding; they touched, and, ignorant of prior discovery, named them "Sebald's islands". Captain William Dampier, an Englishman, nearly 100 years after, in 1686, visited them and styled them "Sibbet de Wards"; he does not speak of seals there. They were finally called the Falkland islands by Strong, an English navigator in 1689; the manuscript journal of Strong yet remains unpublished and filed away in the archives of the British Museum. Captain Cook's emphatic mention of the fur-seal at South Georgia in 1771 gradually drew the attention of fur-sealers to a focus, when, from 1801 to 1840, inclusive, the whole Antarctic sealing-ground was ravaged by them, and the Falkland islands were the head center of all their operations. Great Britain took immediate jurisdiction, for the first time, over the Falkland islands in 1833.

EXTRAORDINARY ABSENCE OF SEALING DATA.—Such, in brief, are the circumstances that attended the early discovery of these celebrated Falkland islands, which were the rendezvous of a large sealing-fleet for a period of nearly 30 years—1800 to 1826, inclusive; yet, in spite of it, I can find little or no evidence of the extent of the catch thereon, or of the general location of the vast rookeries known to be slaughtered here during that extended

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* William Dampier was the boldest and clearest-headed navigator, of all who then sailed into unknown seas. He discovered Australia a century before Cook saw it, cruising at that time as a buccaneer; his narrative gave Defoe the idea and supplied the incidents of "Robinson Crusoe", on Juan Fernandez; and there is no question in my mind that he possessed those qualities which distinguished Captain Cook, to the fullest extent; he only lacked the power of the government behind him, to have made a much earlier record, and entirely as meritorious as is the one which Cook left for posterity.

Although Dampier gives the first sensible and positive description of the fur-seal that I can find, yet there is one reference to this animal much earlier; but it requires the reading of an expert to notice that it arose from the sight of a fur-seal. It is found in the account of Henry Brauer, or Brewer, who, in behalf of the Dutch West India Company, landed on the coast of Staten Land, 9th March, 1642, en route to Chili. Here, at Valentine's bay, he "saw among the rocks several sea-lions and sea-dogs, about the bigness of a good *European* calf; some of a grayish, some of a brownish color, making a noise not unlike our sheep, and at the approach of our men they betook themselves to the sea." [Churchill: *Voyages:* London, 1700: vol. i, p. 456.] As the fur-seal is the only one of its family that makes a "noise not unlike our sheep", there is no question that Henry Brewer saw a number of female *Arctocephalus australis*, in especial; though males were along, they being so much larger, he deemed different, and termed them sea-lions

Juan Fernandez, the Spanish navigator and adventurer, who, in 1563–67, discovered, pre-empted, and colonized the island of his name, died there in 1575, or thereabouts; with his decease, the settlement was abandoned. He, probably, was the first of all civilized men to really know what a fur-seal was; but he has left no record, to my knowledge, of the fact.

interval. If these islands had been far beyond the track of commerce, as are all the other Antarctic sealing-grounds, save Juan Fernandez, then the remarkable, surprising want of data in this respect would not be so marked a feature to the history of the subject. The Falkland islands have not only been a common port of entry and departure for vessels of all nations since their discovery, in 1594, but as far back as 1770 they were a bone of contention and long-sustained diplomatic overtures between Spain and Great Britain, which came very near to plunging both countries into war on their sole account. I will recite the history of this disturbance, because its solution was the direct result of our losing possession of Vancouver's island and all that British Columbian territory to-day south of 54° 40′ north latitude—a fur-sealing quarrel at the outset originated the whole difficulty.

TROUBLES HERE WHICH CAUSED US THE LOSS OF VANCOUVER'S ISLAND.—The piratical cruise of Sir Francis Drake in 1577, followed by that of Thomas Candish, or Cavendish, and John Davies, in 1592, whereby the Spanish settlements and galleons on the west coasts of the American continent were literally ravished, aroused the Castilians to a sense of their future danger, and they began rather slowly to provide means of shelter and future support. In prosecution of this plan for protecting the Spanish settlements and commerce of America, Francisco Bucareli, the governor of Buenos Ayres, on the 10th of June, 1770, forcibly expelled the handful of British "sealers" from their little establishment, Port Egmont, on the Falkland islands. As soon as the news of this expulsion reached London, the English secretary of state, lord Weymouth, addressed, September 12, a demand to the court at Madrid for the immediate disavowal, on its part, of the acts of Bucareli, and called for the prompt and unconditional restitution of the islands in the condition which they were before the writs of removal were executed. War was imminent, but Louis XV, of France, tendered his good offices as a mediator between the two disputants. The Spanish government acceded to this and placed the entire settlement of the controversy in the hands of the king of France, for his disposition as he should consider proper for the honor and rights of Spain. On the 22d of January, 1771, the offers of the king of France were accepted by the court of St. James. On this day the Spanish ambassador at London, Prince Masserano, presented to lord Rochford a declaration in the name of the king of Spain, saying that his Catholic majesty, solely desirous of maintaining peace with England, disavowed the acts of violence committed by the governor of Buenos Ayres, and engaged to restore to his Britannic majesty and his subjects "the port and fort at Egmont, in the Falkland islands, with all the artillery, stores, and effects, precisely" as they were before the 10th of June, 1770; at the same time, however, this offer of restitution contained the following significant clause: "this contract cannot, nor will it in any way, affect the question of prior right of sovereignty to the Falkland islands."

THE TREATY OF NOOTKA INFLUENCED HERE.—The expelled Falkland islanders were then replaced at port Egmont; but, in 1774, they were abruptly withdrawn by order of their own government, and these islands were again taken possession of by the Spaniards, who retained their hold until South America became independent. This abandonment of Great Britain provoked the bitterest political debates in Parliament, and feeling ran high all over that country; deeply imbued with this sentiment, Vancouver went out, in 1791, specially charged by the English government to take possession of the British territory on the northwest coast, according to the articles of the treaty of 1790 between Spain and England, and came to that region in the following year. The Spaniards claimed Vancouver's island then, in their own right, and in behalf of the Americans, captains Gray and Kendrick; their agent, Señor Juan Francisco de la Bodega y Quadra, was stationed at Nootka sound; and immediately after Vancouver's arrival, August 12, 1792, the negotiations were commenced, but Quadra could do nothing in behalf of their rights and those of American discovery. Vancouver peremptorily refused to entertain the subject. Quadra therefore surrendered "Quadra and Vancouver's island" to him, under protest, and withdrew every sign of Spanish authority from these waters of the North Pacific.

Thus the disturbances which arose over the abandonment of the Falkland islands in 1774, worked the loss of that northwest territory to us, through Spain, in 1792. My only regret (after an extended personal residence on Vancouver's island), concerning this whole subject, is that, out of all the uproar at the Falklands, nothing definite has been placed on record relative to the numbers and disposition of the fur-seal thereon.

25. CATALOGUE OF THE MAMMALS OF THE PRIBYLOV GROUP.

[Memoranda of collections made by Henry W. Elliott: Pribylov Islands: 1872 to 1876, inclusive.]

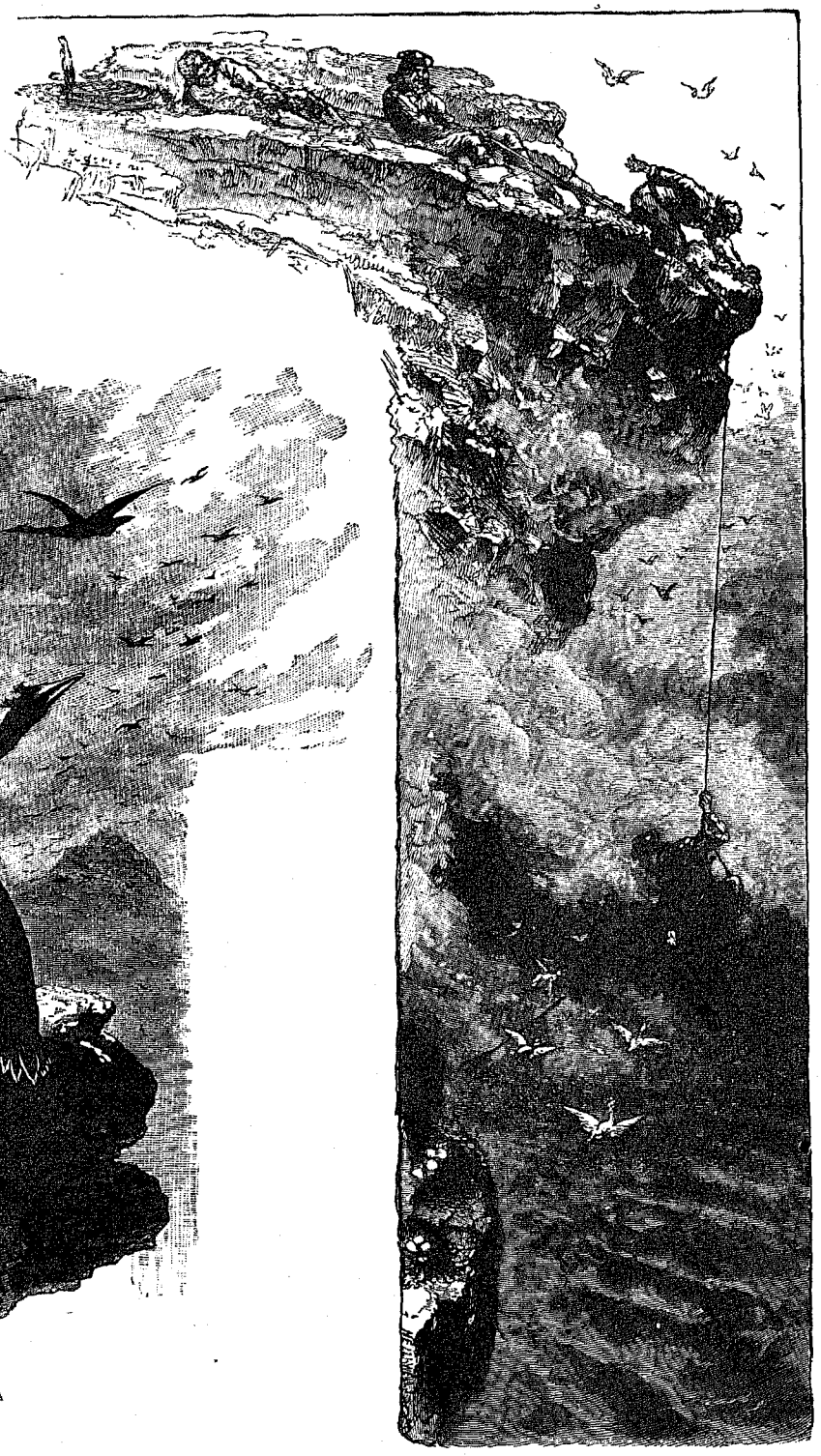
CANIDÆ:

Vulpes lagopus. BLUE OR ARCTIC FOX. Common.

Blue foxes were also, and are, natives of the Commander islands. Steller describes their fearlessness when the shipwrecked crew of the St. Peter landed there, 6th November, 1741. I saw them also at St. Matthew island.

In regard to these foxes the Pribylov natives declare that when the islands were first occupied by their ancestors, 1786–'87, the fur was invariably *blue;* that the present smoky blue, or ashy indigo color, is due to the coming of white foxes across on the ice from the mainland to the eastward. The white-furred *vulpes* is quite numerous on the islands to-day. I should judge that perhaps one-fifth of the whole number were of this color; they do not live apart from the blue ones, but evidently breed "in and in". I notice that Veniaminov, also,

THE CURIOUS SHAG.



NATIVES OVER THE CLIFFS.

OÖLOGICAL SKETCHES ON ST. GEORGE, BY THE AUTHOR.

Herewith presented through the courtesy of Harper Brothers.

makes substantially the same statement; only differing by charging this deterioration of the blue foxes' fur to the deportation from outside of red ones, on ice-floes; and adds that the natives always hunted down these "krassnie peeschee" as soon as their presence was known; hence my inability, perhaps, to see any sign of their posterity in 1872–'76.

The presence of these animals on the Pribylov islands is a real source of happiness to the natives, especially so to the younger ones. The little pup-foxes make pets and playfellows for the children, while hunting the adults during the winter gives wholesome employment to the mind and body of the native who does so. They are trapped in common dead-falls, steel spring-clips, or beaver traps, and shot. A very large portion of the gossip on the island is in relation to this business.

PINNIPEDIA:

Callorhinus ursinus. FUR-SEAL. Abundant.
Eumetopias Stelleri. SEA-LION. Common.
Phoca vitulina. HAIR-SEAL. A few only.

While the *Phocidæ* are so scant as to number and variety in the waters of the North Pacific and Bering sea, yet they fairly rival the myriads of the fur-seal here by their presence in the waters of the North Atlantic; and, also, their surprising aggregate in the Caspian sea. So great is the volume of hair-seal life in the circumboreal region of the Orient, that the astonishing sum of from 850,000 to 900,000 *Phocidæ* are annually taken there! and from the Caspian sea an additional count of a yearly average of 130,000, making a round million of these animals slaughtered every season. At least, such are the data which we find in the writings of the only credible authorities known, viz, Bonnycastle, *Newfoundland*, in 1842, vol. 1, p. 159; Carroll, *Seal and Herring Fisheries of Newfoundland*, 1873, p. 9; Lindeman, *Pet. Geogr. Mitth.*, pp. vi, 118; *Die Arktische Fischerei der Deutschen Seestädte*, 1620–1868; Brown, *Man. Nat. Hist. Geol., etc., of Greenland*, 1868–1875; Melsom, *Pet. Geogr. Mitth.*, 1869, p. 81; Petersen, *Pet. Geogr. Mitth.*, 1870, pp. 194 *et seq.*, 1871, pp. 35 *et seq.*; Lovenskiöld, *Land and Water* (newspaper), 1875, p. 160; Schultz, *Rep. U. S. Com. Fish and Fisheries*, pt. iii, for 1873–'74 and 1874–'75 (a translation of the original published at St. Petersburg in 1873). Allen, in his *History N. A. Pinnipeds*, has so liberally compiled and quoted from these authors that it would be simply superfluous service to reprint those records here.

Odobænus obesus. WALRUS. A few only.

CETACEA:

Orca gladiator, var. rectipennis. KILLER-WHALES. A few only.
Megaptera versabilis. HUMPBACK WHALES. A few only.

RODENTIA:

Myodes obensis. LEMMING. Abundant on St. George only.
Mus musculus. HOUSE MOUSE. Common in the villages (imported by man).

26. CATALOGUE OF THE BIRDS OF THE PRIBYLOV GROUP.

VAST NUMBERS OF WATER-FOWL.—In the seasons of 1872–'73, respectively, throughout the ornithological breeding terms on St. Paul and St. George, I neglected no opportunities, as they occurred, to secure everything that was peculiar to the feathered life upon these islands. The dreary expanse and lonely solitudes of the North owe their chief enlivenment, and their principal attractiveness for man, to the presence of the vast flocks of circumboreal water-fowl, which repair thither annually. It is true that the mammalian life of the Pribylov group renders its immense aggregate of avifauna insignificant by comparison; but to the naturalist and many who are not technically versed, the following check-list of those species which I found there, together with a brief biography accompanying each title, may be of more than passing interest.

While a few species of water-fowl come to these islands in myriads for the purpose of breeding, it will be noticed that the list of names met with here is a brief one; still it is of much value to the naturalist, inasmuch as it comprises so many desiderata scarcely to be obtained elsewhere.

THE IMMENSE ROOKERIES OF ST. GEORGE.—Over fifteen miles of the bold, basaltic, bluff line of St. George island is fairly covered with nesting gulls, *Rissa*, and "arries", *Uria*, while down in the countless chinks and holes over the entire surface of the north side of this island millions of "choochkies", *Simorhyncus pusillus*, breed, filling the air and darkening the light of day with their cries and fluttering forms. On Walrus islet the nests of the great white gull of the north, *Larus glaucus*, can be visited and inspected, as well as those of the sea-parrot or puffin, *Fratercula*, sp., shags or cormorants, *Graculus* sp., and the red-legged kittiwake, *Larus brevirostris*. These birds are accessible on every side, can be reached, and afford the observer an unequaled opportunity of taking due notice of them through their breeding-season, as it begins in May and continues until the end of September.

ECONOMIC VALUE TO INHABITANTS.—Not one of the water-birds found on and around the islands is exempted from a place in the native's larder; even the delectable "oreelie" are unhesitatingly eaten by the people, and indeed

these birds furnish, during the winter season in especial, an almost certain source of supply for fresh meat. But the heart of the Aleut swells to its greatest gastronomic happiness when he can repair, in the months of June and July, to the basaltic cliffs of St. George, or the lava table-bed of Walrus islet, and put his grimy hands on the gaily colored eggs of the "arrie", *Lomvia arra;* and if he were not the most improvident of men, instead of taking only enough for the day, he would lay up a great store for the morrow, but he never does. On the occasion of one visit, and my first one there, July 5, 1872, six men loaded a badarrah at Walrus islet, capable of carrying four tons exclusive of our crew, down to the water's edge with eggs, in less than three working hours.

DISAPPEARANCE OF BIRDS IN WINTER.—During the winter months the birds are almost wholly absent, especially if the ice shall have closed in around about the islands; then there is nothing of the feathered kind save the stupid shag, *Graculus bicristatus*, as it clings to the leeward cliffs, or the great burgomaster gull, which sweeps in circling flight high overhead; but, early in May they begin to make their appearance; and they come up from the sea overnight, as it were, their chattering and their harsh caroling wakes the natives from their slothful. sleeping, which, however, they gladly break, to seize their nets and live life anew, as far as eating is concerned, The stress of severe weather in the winter months, the driving of the snow "boorgas", and the floating ice-floes closing in to shut out the open water, are cause enough for the disappearance of the water-fowl during the hyemal season.*

CASTAWAY BIRDS ON THE PRIBYLOV ISLANDS.—The position of the islands is such as to be somewhat outside of the migratory path pursued by the birds on the mainland; and, owing to this reason, they are only visited by a few stragglers from that quarter, a few from the Asiatic side, and by the millions of their own home-bred and indigenous stock. One of these migratory species, *Strepsilas interpres*, however, comes here every summer for three or four weeks' stay, in great numbers, and actually get so fat, in feeding upon the larvæ which abound in the decaying carcasses over the killing-grounds, that it usually bursts open when it falls, shot on the wing. A heavy easterly gale often brings a strange bird to the islands from the mainland; a grebe, *Podiceps griseigena*, was stranded on St. George in 1873, whereupon the natives declared the like of which they had never seen before; when I found a robin one cool morning in October, the 15th, the natives told me that it was an accident—brought over by some storm or gale of wind that took it up and off from its path across the tundra of Bristol bay. The next fair wind sweeping from the north or the west could be so improved by this robin, *Tusdus migratorius*, that it would spread its wings and as abruptly return. Thus hawks, owls, and a number of foreign water-fowls visit the islands, but never remain there long.

FAILURE TO INTRODUCE RAVENS.—The Russians tried the experiment of bringing up from Sitka and Oonalashka a number of ravens as scavengers, a number of years ago, and when they were very uncleanly in the village, in contrast with the practice of the present hour; they reasoned that they would—these ill-omened birds—be invaluable as health officers; but the *Corvidæ* invariably, sooner or later, and within a very short time, took the first wind-train back to the mainland or the Aleutian islands; yet the natives say that if the birds had been young ones instead of old fellows, they would have remained. I saw a great many, however, at St. Matthew island, in August, 1874; also, their slowly-marked flight overhead was a common sight on St. Lawrence.

POULTRY KEPT BY NATIVES.—The natives keep a small number of chickens, and often they take their poultry into their living rooms and coop them up in the corners; they get return in eggs; but of all the forlorn, wretched, bedraggled specimens of domestic fowls, those that have to shiver and shake themselves outside when viewed on the seal-islands are the most miserable. They do not exactly freeze, but the raw, damp, incessant violence of the weather keeps them inactive and cowering for such long, unbroken periods that their feathers seem to fall out, and disease marks them for its own.

OÖLOGICAL WEALTH OF WALRUS ISLAND.—I am much divided in my admiration of the two great bird-rookeries of the Pribylov group, the one on the face of the high bluffs at St. George, and the other on the table-top of Walrus islet; but, perhaps, the latter place gives, within the smallest area, the greatest variety of nesting and

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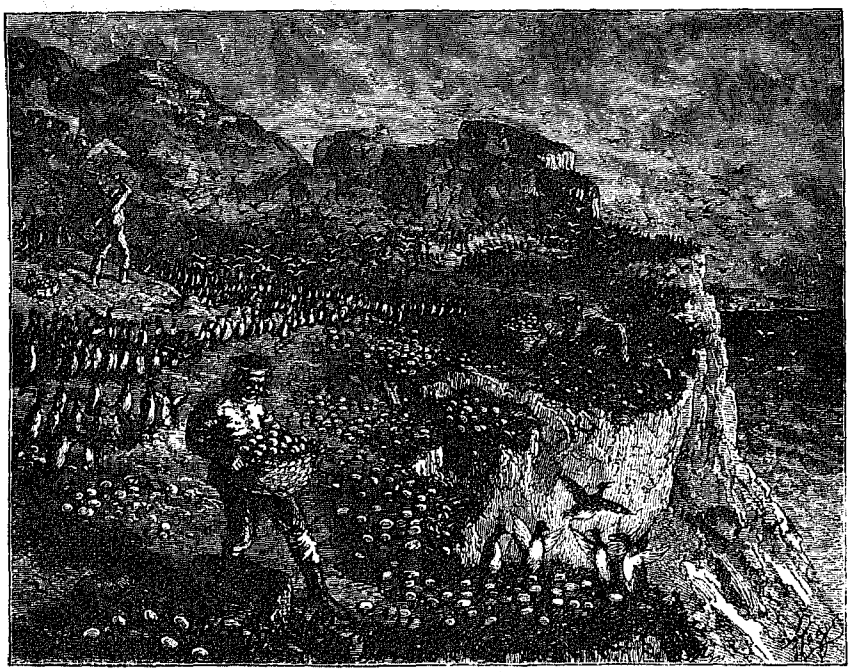
* While daily served on St. George, during June and July, with eggs of indigenous sea-fowl, I recorded my gastronomic comparisons which occurred then as I ate them. Here follows a recapitulation:

Fresh-laid eggs of "lupus," or *F. glacialis*..Best eggs known to the islands; can be soft-boiled or fried, and are as good as our own hens' eggs; the yolk is light and clear; the size thereof is in shape and bulk like a duck's egg; it has a white shell. SEASON: June 1 to 15, inclusive; scarce on St. Paul and not abundant on St. George.

Fresh-laid eggs of "arrie," or *L. arra*.....Very good; can be soft-boiled or fried; are best scrambled; yolks are dark; no strange taste whatever to them; pyriform in shape; large as a goose egg; shell gaily colored; they are exceedingly abundant on Walrus island and St. George; tons of them. SEASON: June 25 to July 10, inclusive.

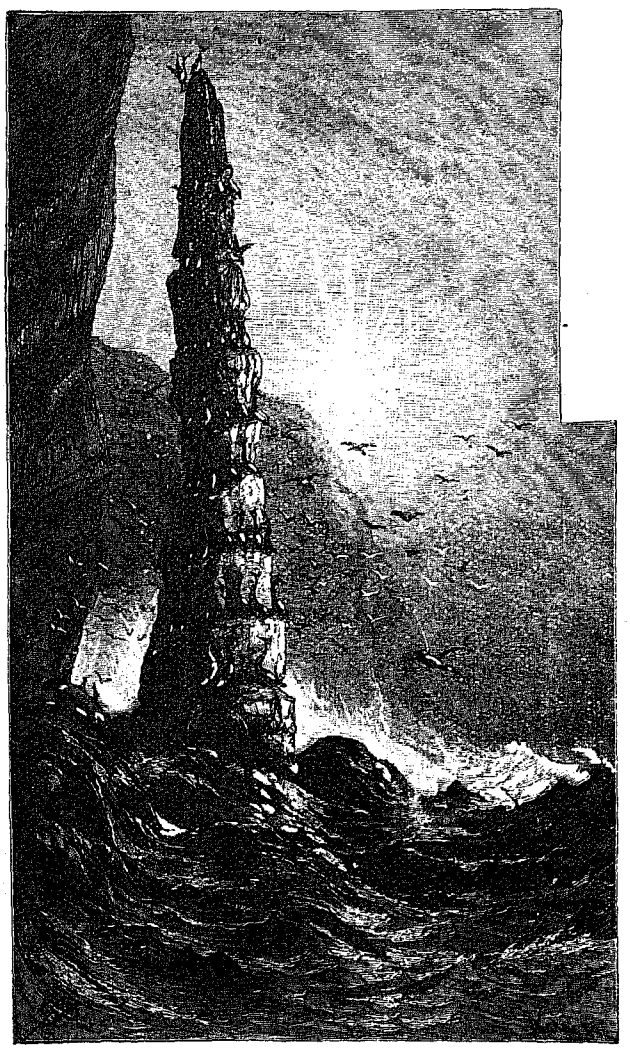
Fresh-laid eggs of gulls; *Laridæ*.....Perceptibly strong; cannot be relished unless in omelettes; yolks very dark; size and shape of our hen's egg; shell dark, clay-colored ground, mottled. SEASON: June 5 to July 20, inclusive; they are in moderate supply only.

The other eggs in the list, such as those of the "choochkie", the "shag", and the several varieties of water-fowl which breed here, are never secured in sufficient quantity to be of any consideration as articles of diet. It is, perhaps, better that the scarcity of their kind continue, judging from the strong smack of the choochkie's, the repulsive taint of the shag's, and the "twang" of the sea-parrot's, all of which I tasted as a matter of investigation

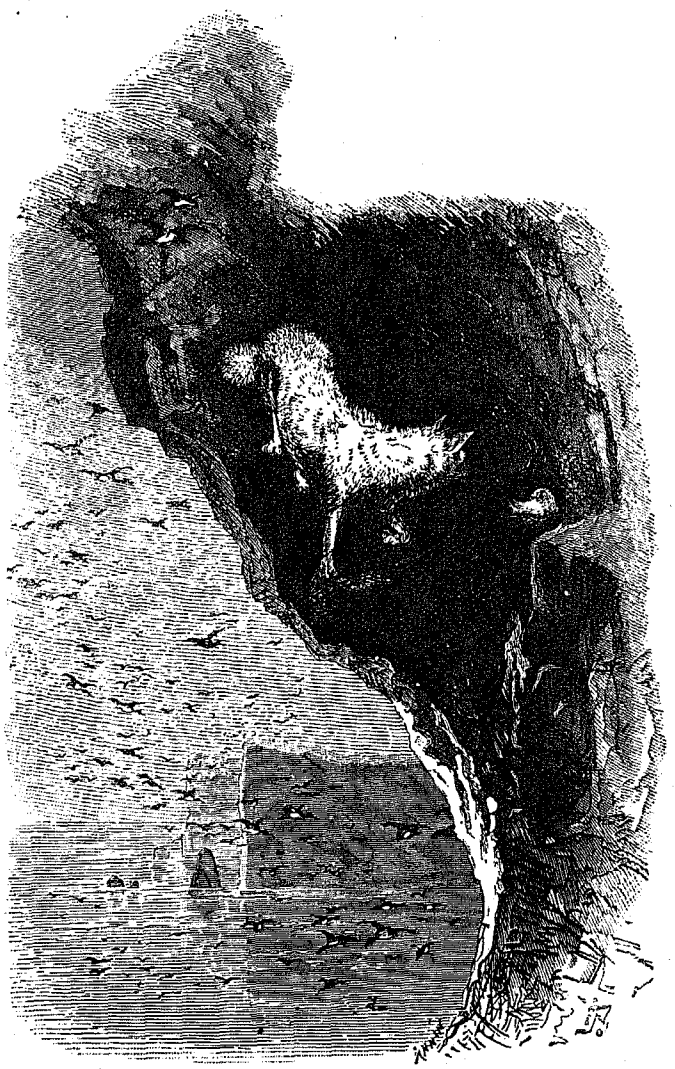


GATHERING EGGS ON WALRUS ISLAND.

THE "KANOOSKA."



CLEOPATRA'S NEEDLE.
(ST. LAWRENCE ISLAND.)



NO ROOM FOR ARGUMENT.

ORNITHOLOGICAL SKETCHES ON THE SEAL-ISLANDS, BY THE AUTHOR.

Herewith presented through the courtesy of Harper Brothers.

breeding birds; for here the "arrie" and many gulls, cormorants, sea-parrots, and auks come to lay their eggs in countless numbers. The foot and brow of the low, cliff-like sea fronts to this island are occupied almost exclusively by the "arries", *Lomvia arra*, which lay a single egg, each, on the surface of the bare rock, and stand, just like so many champagne bottles, straddling over them while hatching; only leaving at irregular intervals to feed, and then not until their mates relieve them. Hundreds of thousands of these birds, alone, are thus engaged about the 29th of every June, on this little rocky island, standing stacked up together as tight as so many sardines in a box—as thickly as they can be stowed—each of them uttering an incessant, deep, low, hoarse, grunting noise. How fiercely they quarrel among themselves—everlastingly; and in this way thousands of eggs are rolled off into the sea, or into crevices, or into fissures, where they are lost and broken.

TOUGHNESS OF ARRIE EGG-SHELLS.—The "arrie" lays but one egg. If it is removed or broken she will soon lay another; but, if undisturbed after depositing the first, she undertakes its hatching at once. The size, shape, and coloration of this egg, among the thousands which came under my observation, are exceedingly variable. A large proportion of the eggs become so dirty, by rolling here and there in the guano while the birds tread and fight over them, as to be almost unrecognizable. I was struck by the happy adaptation of nature to their rough nesting; it is found in the toughness of the shell of the egg—so tough that the natives, when gathering them, throw them as farmers do apples into their tubs and baskets, on the cliffs, and then carry them down to the general heap of collection near the boats' landing, where they pour them out upon the rocks with a single flip of the hand, just as a sack of potatoes would be emptied; and then again, after this, they are quite as carelessly handled when loaded into the "bidarrah", sustaining through it all a very trifling loss from crushed or broken ones.

BIRD ZONES ON WALRUS ISLET.—Those "arries" seem to occupy a ribbon in width, and draw around the outward edges of the flat table-top to Walrus island a regular belt, keeping all to themselves; while the small grassy interior from which they are thus excluded is the only place, I believe, in Bering sea where the great white gull, *Larus glaucus*, breeds. Here I found among the little mossy tussocks the burgomaster building a nest of dry grass, sea ferns, *Sertularidæ*, etc., very nicely laid up and rounded, and in which it laid usually three eggs, sometimes only a couple; occasionally I would look into a nest with four. These big birds could not breed on either of the other islands in this manner, for the glaucous gull is too large to settle on the narrow shelf ledges of the cliffs, as the smaller *Laridæ* and other water-fowls do; and those places which would receive it might also be a hunting-ground and footing to the foxes.

The red-legged kittiwake, *Larus brevirostris*, and its cousin, *Larus tridactylus*, build in the most amicable manner together on the faces of the cliffs, for they are little gulls, and they associate with the cormorants, sea-parrots, and auks, all together; and, with the exception of the latter, the nests are very easy of access. All birds, especially the "arries", have an exceedingly happy time of it on this Walrus islet—nothing to disturb them, in my opinion—free from the ravenous maw of the foxes over at St. Paul, and from the piratical and death-dealing sweep of owls and hawks, which infest the Aleutian chain and the mainland.

SYSTEMATIC LIST OF THE AVIFAUNA.—I will now offer, in natural sequence, a list of the names which are to be seen every year upon the ornithological register of the Pribylov islands, and the transient ones, also:

1. **Turdus migratorius.** ROBIN; "RAP-O-LOOF."

Casual, and rarely seen; never resident. Specimen secured October, 1872.

2. **Anorthura troglodytes var. alascensis.** ALASKAN WINTER WREN; "LIMMER-SHIN."

This wee bird is not migratory, but remains permanently upon St. George; its nest is built in small, deep holes and crevices of the cliffs. I have not myself seen it, but the natives say that it lays from eight to ten eggs in a nest made of dry grass and feathers, roofed over, with an entrance at the side to the nest-chamber, being thus elaborately constructed.

The male is exceedingly gay during the period of mating and incubation, flying incessantly from plant to plant, or from rock to rock, and singing a rather loud song for a small bird. I shot the young, fully fledged, on the 28th of July; it differed only from the parent in having a much shorter bill, and a darker and more diffuse coloration. Although St. Paul island is but twenty-seven miles to the northwest, as the crow flies, from St. George, not a single specimen of this little wren has been seen there. I made, during the whole season of 1872, unavailing search for it.

The natives' name, "limmer-shin," signifies a chew of tobacco; and, as the bird is not as large as some quids which I have seen, the name is quite appropriate, for the dull brown and black plumage of the bird suggests it also.

3. **Leucosticte tephrocotis var. griseinucha.** GRAY-EARED FINCH; "PAHTOSHKIE."

This agreeable little bird, always cheerful and self-possessed, is a regular and permanent settler on the islands, which it never leaves. In the depth of dismal winter, as well as in the halo of a summer's day, the pahtoshkie greets you with the same pleasant chirrup, wearing the same neat dress, as if determined to make the best of everything. It is particularly abundant on St. George, where its habit may be studied to great advantage. The pahtoshkie nests in a chink or crevice of the cliffs, building a warm, snug home for its little ones, of dried grasses and moss, very neatly put together, and then lined with a few superfluous feathers. The eggs vary in number from

three to six; there generally is four. They are pure white with a delicate rosy blush, when fresh, and measure 0.97 by 0.67 of an inch. The young break the shell at the expiration of twenty or twenty-two days' incubation, the labor of which is not shared by the male; he, however, brings food to his mate, singing as most birds do of his kind, highly elated by the prospects of paternity. The chicks, at first, are sparsely covered with a sprinkling of dark-gray down, and in two or three weeks gain their feathers, fitting them for flight, though they do not acquire the ash and black of the head, while the chocolate-brown on the back is rich, and the rosy tints of their feather-tips turn to crimson. These bright hues of adolescence do not appear until they are one year old; between the old birds, however, there is no outward dissimilarity in size or coloration, the male and female being exactly alike. They feed upon various seeds and insects, as well as the larvæ which swarm on the killing-grounds. They are fearless and confiding, fluttering in the most familiar manner around the village huts. In the summer of 1873 a pair built their nest and reared a brood under the eaves of the old Greek church, that tottered on its rotten foundations, at St. George. It has no song, but utters a low, mellow chirp, sounding this note both flying and sitting, in the same cadence. It seems to pair off altogether and never reassembles in flocks. I secured a large number of beautiful specimens of the adults of both sexes in neat breeding attire, and others illustrating the earliest plumage of the young.

4. Plectrophanes nivalis. SNOW BUNTING; "SNAGUISKIE."

The snow-bird is another permanent resident of these islands, but one which, unlike the pahtoshkie, you will notice, is very shy and retiring, nesting high on the rocky, broken uplands, never coming down to the village, except during unusually severe or protracted cold weather. This bird builds an elegant and elaborate nest of soft, dry moss and grass, and lines it warmly again with a thick bed of feathers. It is placed on the ground beneath some heavy lava-shelf or at the foot of an enormous bowlder. Five eggs are usually laid, about the 1st of June; they are an inch long by two-thirds broad, of a grayish or greenish white, spotted sometimes all over, sometimes at or around the larger end only, with various shades of rich dark-brown, purplish-brown, and paler neutral tints. Sometimes the whole surface is quite closely clouded with diffuse reddish-brown markings. Upon the female the entire labor of the three weeks' incubation required for the hatching of her brood devolves. During this period the male is assiduous in bringing food; and at frequent intervals sings his simple but sweet song, rising, as he begins it, high up in the air, as the skylark does, and at the end of the strain drops suddenly to the ground again. The young are early provided with a gray, downy coating, which is speedily replaced by one resembling that of the adult female; and, in less than four weeks from the date of hatching, the little "snaguiskie" is as big as its parents and weighs more. The food of this species consists of the various seeds and insects peculiar to the rough, higher grounds it frequents, being especially fond of the small coleopterous beetles found on the island. It never flies about the rocks here, and cannot be called at any season of the year gregarious, like its immediate relative, the Lapland longspur, with which it is associated on these sea-girt islets.

5. Plectrophanes lapponicus. LAPLAND LONGSPUR; "KARESCH-NAVIE SNAGUISKIE."

This bird is the vocalist *par excellence* of the Pribylov group, singing all through the month of June in the most exquisite manner, rising high in the air and hovering on fluttering wings over its sitting mate. The song is so sweet that it is always too short, though it lasts a few moments, with brief intervals only. This songster is much more shy and reserved than the common snow-bunting; and it rarely enters the village. It is most abundant on St. Paul island, where, unlike the snowflake, it seeks the low, grassy grounds, both for food and resting, being never found among the rough bowlders chosen for a home by the other *Plectrophanes*. The two nests, which I found, were built in tussocks of grass on the low, hummocky flat between the village and the main ridge of St. George, sheltered and half concealed beneath a drapery of withered grass. In each case the mother-bird did not fly away till I almost stepped upon her nest, when she quickly fluttered off and disappeared in perfect silence. Those nests and females in breeding dress were the first of their kind to arrive at the Smithsonian collection. One nest contained four and the other five eggs, rather smaller than the snow-bunting, and of a rich, gray-brown color, with deep shades of brown running over them in spots and suffused lines. These examples were not discovered until the 7th of July, at which date the eggs in both were perfectly fresh. They were, probably, not laid until about the end of June. The young appear in the same manner as those of *P. nivalis*. The males do not assume the distinctive coloration of their sex until the next season. The natives say that very severe weather sometimes drives the longspur away, although the other relative, the snow-bunting, is never forced to leave.

6. Corvus corax. RAVEN; "VAR-RONE."

As I have remarked in my general introduction, the experiment of introducing ravens was unsuccessfully tried by the Russians, but the natives still claim that if a number of young birds were brought here and raised, they could be induced to remain upon the islands during the whole season. They say that the failure to keep those birds brought up from Oonalashka, on several occasions prior, was due to the fact of their being old birds.

7. Falco sacer. GYRFALCON.

The specimen of this bird, in my collection, was evidently stranded and forced out of its usual flight when I secured it on the Reef point at St. Paul island, March, 1873. It was the only one that I saw while there.

8. Charadrius fulvus. GOLDEN PLOVER.

The appearance of this specimen in my collection, was another new item added to the list of North American birds, since it is the first American specimen of the true Asiatic *fulvus*, and not the North American var. *Virginicus*. It came to St. Paul as a wanderer on the 2d of May, 1873, and the natives told me that it was a frequent visitor in that manner; a few stragglers landing in April, or the first days of May, and passing on their way north, never remaining long. They return in greater number, however, by the close of September, and grow fat upon the larvæ generated over the killing-grounds, leaving for the south by the end of October.

9. Strepsilas interpres. TURNSTONE; "KRASS-NIE KO-LIT-SKIE," or "KRASSNIE NOGIE."

This is a very handsome bird when in full plumage, and arrives in flocks of thousands about the third week in July, taking its departure from the islands along by the 10th of September. It does not breed here, and it comes, undoubtedly, to feed upon the larvæ and maggots of the killing-grounds. It is certainly one of the most attractive of plovers, as it struts and marches with bright-red legs and intense black-banded breast, and a back shaded with brown and green reflections. I am at a loss to fix its breeding place; I have met with it at sea 700 miles from the nearest land, flying northwest toward the Aleutian islands, my ship being 800 miles west from the straits of Fuca.

10. Lobipes hyperboreus. NORTHERN PHALAROPE.

A few couples breed on the islands, nesting around the margins of the lakelets. The egg I was unable to find, but I secured several newly-hatched young ones, which were very interesting little creatures. They are only two or three inches long, with bill about a third of an inch in length, and no thicker than an ordinary dressing-pin. The down of the head, neck, and upper parts is a rich brownish yellow, variegated with black, the crown being of this color mixed with yellow, and a long stripe extends down the back, flanked with one over each hip, and another across the rump, and a shoulder spot on each side. The under parts are a grayish, silvery white. The old bird, when startled or solicitous for the safety of its young, utters a sonorous "tweet" call, quickly repeated, with long intervals of silence between them.

11. Phalaropus fulicarius. RED PHALAROPE.

Though I found this bird very much more abundant than the preceding species at certain times, yet I am satisfied that it does not breed here. It is found, like the other, by the marshy margins of the pools and ponds, usually solitary, though paired occasionally, but never in flocks. The earliest arrivals occur in June, but the birds reappear in greatest number about the 15th of August. They all leave by the 5th of October.

12. Tringa ptiloonemis. THICK-BILLED SAND-PIPER. "KO-LITS-KIE."

The most interesting result, in some respects, of my ornithological work, is the determination by my specimens of the occurrence of this species in abundance on the Pribylov islands, where it breeds. That discovery adds a species, previously unrecognized as North American, to our fauna. As a long, elaborate, and graphic description of the bird, based upon my collections, was made by Dr. Elliott Coues,* when he reviewed my labor on these islands, I shall not duplicate it here; but I wish to give him credit for his prompt recognition of the novelty; and in this connection let me add, that in 1874 I saw it just as abundantly on St. Matthew island. I should say, it is the only wader that incubates on the Pribylov islands, with the marked exception of a stray couple now and then of *Phalaropus hyperboreus*. It makes its appearance early in May, and repairs to the dry uplands and mossy hummocks, where it breeds. The nest is formed by the selection of a particular cryptogamic bunch, and there setting. It lays four darkly-blotched pyriform eggs, and hatches them within twenty days. The young come from the shell in a thick, yellowish down, with dark brown markings on the head and back, getting the plumage of their parents and taking to wing as early as the 10th of August; at this season old and young flock together for the first time, and confine themselves to the sand-beaches and surf-margins about the islands for a few weeks, when they take flight by the 1st or 5th of September, and disappear until the opening of the new season. It is a most devoted and fearless parent, and will flutter in feigned distress around by the hour, uttering a low, piping note, should one approach near to its nest. It makes a sound ridiculously like the cry of our tree-frogs, and I searched in consequence unavailingly for several weeks, deceived by the call of this bird, for the presence of such a reptile.†

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* *Condition of Affairs in Alaska:* H. W. Elliott: 1874, p. 182.

†When I was collecting this bird, I took it to be a well-defined *Tringa maritima;* and did not suppose for an instant, that it was an undescribed species to the avifauna of both the old world and the new. Had I thought seriously of it, however, I might have had my suspicions aroused then, and hence given it still more attention, so that my large series of specimens might have embraced the autumn or perfected fall plumage; and, I would also have secured many nests, rather than the single one which I did get. My old friend, Dr. Elliott Coues, was the first to discover the originality of this new sand-piper, though he was very closely followed by that excellent authority on Limicoline birds, J. E. Harting, F. L. S., etc., of London, to whom Professor Baird sent one of my specimens of 1872, also, thinking it to be *T. maritima*. A curious fact, however, is the remarkably restricted range which this strongly-built bird enjoys in Alaska; it has been seen nowhere except on these Pribylov islands and on St. Matthew, 200 miles to the north of them; where, in 1874, I saw large numbers, breeding as they do here. I did not see one on St. Lawrence, again to the northward, 180 miles from St. Matthew island, and it has never been detected on the mainland, or the islands of the Aleutian chain, the peninsula, or northwest coast, inclusive, although that country has been scoured over thoroughly by naturalists and collectors during the last fifteen years; therefore unless it is found and winters on the large islands of the Commander group, 700 miles to the westward of the Prilylovs, I believe that its restriction as above defined is only paralleled by the square mile limit of distribution peculiar to several species of South American humming birds.

13. Limosa uropygialis. WHITE-RUMPED GODWIT.

This wader is a mere chance visitor, never breeding here. It comes in a straggling manner, early in May, and passes northward over the islands, hardly stopping on the way. It reappears, toward the end of August, going south, in flocks of a dozen to fifty, making then, as before, scarcely an appreciable visit.

14. Heteroscelus incanus. WANDERING TATTLER.

This bird is also migratory, and does not breed here. It comes every year early in June, and subsequently reappears toward the end of July, when I again observed it. It may be obtained on the rocky beaches, where it flits at the surf-wash, shy and quiet.

15. Numenius borealis. ESKIMO CURLEW.

I never saw but the single specimen, which I shot and preserved, on the seal-islands while up there; but the natives assured me that some years, and quite often, it appears in large flocks during the fall. This one was procured by me in June, 1872, on St. Paul island.

16. Philacte canagica. EMPEROR GOOSE.

This goose of the great Yukon river gets over here by mistake, I fancy, for the flock of which I witnessed the capture, landed on St. Paul island so exhausted, that the natives ran the birds down in open chase over the grass. I found the flesh of *Philacta*, contrary to report, free from any unpleasant flavor, and in fact very good. The objectionable quality is only skin deep, and may be got rid of by the least care, when the cook prepares it for the table.

17. Branta canadensis. WHITE-COLLARED GOOSE; "CHORNIE GOOSE."

This species, like the former, seems to be a mere straggler and irregular visitor, evidently driven by high winds to rest here for a brief period, ere they resume their customary lines of migration along the mainland.

18. Anas boschas. MALLARD DUCK.

A pair of these fine birds bred on the island of St. Paul during the season of 1872, at Polavina lake, and several were observed later in the fall. The mallard I also noticed on St. George island, but the natives say it is not a regular visitor.

19. Mareca penelope. WIDGEON.

It is an interesting fact, that this widgeon, as my specimens attest, which visits the Pribylov islands, is not *M. americana*, as might be anticipated, but it is the true *M. penelope*. I saw only a few specimens, and saw them rarely. They were solitary examples, never in pairs, and it does not breed on the islands; apparently the few individuals, which I noted during two years of observation, were wind-bound or estray.

20. Harelda glacialis. LONG-TAILED DUCK; "SAAFKA."

This noisy, chattering example is common and resident. It appears everywhere on the pools, ponds, sloughs, and lakes of the two islands; in limited numbers, however. The *Saafka* is a very lively bird, particularly in the spring, when with the breaking up of the ice it flies into the open reaches of water, and raises its peculiar, sonorous, and reiterated cry of *ah-naah-naăh-yah*, which rings cheerfully upon the ear after the silence and desolate dearth of an ice-bound winter.

21. Histrionicus torquatus. HARLEQUIN DUCK.

My experience with this bird is radically different from another writer, he stating that it is an essentially solitary species, found alone or in pairs, only in the most retired spots, on the small rivers flowing into the Yukon, where it breeds.* It is the most gregarious of all the duck tribe known to these islands; flocks of a hundred, closely bunched together, may be found at every turn by the traveler on the coast; nor is it particularly wild or shy, for every morning at St. George, whenever I chose to walk to the water's edge beneath the village, and less than a quarter of a mile distant, I could have a shot at fifty or a hundred of these birds, just as I had enjoyed such an opportunity in the early dawning previously; but it is a remarkably silent bird, and from it I never heard any cry whatever during the whole year; for it is about the island, unless the ice drives it away, throughout that entire period. It is a very social duck, solitary pairs never being seen away from the flock. The females seem to outnumber the males two to one; but, the strangest thing about it was my total inability, and that of the natives, too—for I offered an inordinate reward—to find its eggs or nest. It must breed about here, but whether deep in the rock interstices of the beach shingle, or flying by night to the high ridges inland, I am ignorant.

22. Somateria Stelleri. STELLER'S EIDER.

From the village hill at St. Paul, in May, 1872, I shot two specimens of this duck, and then not knowing as much about the seal-island cats as I speedily learned thereafter, the fresh stuffed specimens were literally torn into a thousand fragments by these abominable felines. It is, as I did not see it afterward during my residence on the group, a straggler, and nothing more.

23. Graculus bicristatus. RED-FACED CORMORANT; "OREEL."

As this bird of Pallas is found about the islands during the whole winter as well as the summer, despite the weather, perched on the sheltered bluffs, the natives regard it with a species of affection, for it furnishes the only

*Trans. Chicago Acad., i, 298.

supply they can draw upon for fresh meat, soups, and stews, always wanted by the sick; and, were these shags sought after throughout the year near as diligently as they are during the long spell of bitter temperature that occurs here in severe winters, driving other water-fowl away, they certainly would be speedily exterminated; yet, they are seldom shot, however, when anything else can be obtained. The terrible storms in February and March, when the wind "boorgas" blow as tornadoes, are unable to drive the shag away, but all other water-fowl, even the big northern gulls, depart for the open water south. It comes under the cliffs to make its nest and lay—the earliest of the birds in Bering sea. Two eggs were taken from a bed on the reef, St. Paul island, June 1, 1872, nearly hatched, which is more than three weeks in advance of the other water-fowls, almost without exception. The nest is large, carefully rounded up, and built upon some jutting point or narrow shelf along the face of a cliff or bluff; in its construction sea-ferns (*Sertularidæ*), grass, etc., are used, together with a cement made largely of their own excrement.

The eggs are usually three in number, sometimes four, and, compared with the size of the bird, are exceedingly small. They are oval, of a dirty, whitish gray, green, and blue color, but soon become soiled; for, although this bird's plumage is sleek and bright, yet it is very slovenly and filthy about the nest—the dirtiest bird of all the north when we regard its domestic economy. The young come from the shell at the expiration of three weeks' incubation, without feathers and almost bare, even of down; they grow, however, rapidly, fed by the old birds, who eject the contents of their stomachs, such as small fish, crabs, and shrimps, all over and around the nest. In about six weeks the young cormorant can take to its wings, and, strange as it may seem, it is then fully as large and heavy as the parents; but it is not until the beginning of its second year that it shimmers out in the bright plumage and metallic gloss of the adult, wearing, during the first year of probation, a dull, dingy, drab-brown coat, with the brilliant red colors at the base of the bill, and gular sac, subdued.

This cormorant is a stupid and very inquisitive bird. It utters no sound whatever, except when flying over, about, or around a boat or ship, which seems to possess a magnetic power of attraction for them. When they are thus hovering and circling aloft in this method, they utter a low, droning croak. It cannot be called a bird of graceful action at any place, either on the wing, in the sea, or perched. Its flight is a quick beating of the wings, which are usually more or less ragged at the edge, with the neck and head stretched out full length horizontal to the axis of the body. So curious is it, that in flying, around and around again to satisfy itself, it comes close enough for an observer, should he stand erect in the bow of a boat, almost to touch it with his hand. It is very dirty on the rocks, and does not keep its nest in tidy trim like the gulls; but, in regard to its plumage, I frankly confess that I have sat for long intervals near a shelf whereupon fifteen or twenty of these birds were resting, absorbed in true admiration of the brilliant gloss and glittering sheen of their feathers; their coats really scintillate when in the sunlight with a confused blending of rich brownish and deep purple reflections, as though clothed in steel armor beautifully damascened.

24. Diomedea brachyura. SHORT-TAILED ALBATROSS.

This bird was the only real suggestion which arose to my mind, during my sojourn on the Pribylovs, of the past epoch of noted activity in the whale fisheries of the North Pacific and the Arctic; for, as I first discerned the large bulk and spread of the albatross prior to shooting, the natives clapped their hands and said, "You should have been here twenty years ago when, instead of this solitary example, you would have seen thousands." They came with the whalers, and disappeared, as they had done; but, as if prompted by legends among their kind, now and then an adventurous one comes north again and looks in vain for its whale food, or the skinned carcasses rather, turned adrift by the whalemen; they were in sight of the island constantly, year in and year out, during that period of great whaling industry. The bird just cited, and this one only, was a solitary example of its kind observed by me. Two hundred miles to the southward, however, it is quite frequent about the Aleutian islands.

25. Fulmarus glacialis. RODGER'S FULMAR; "LUPUS."

This is the only representative of the *Procellarinæ* I have seen on or about the Pribylov islands. It repairs to the cliffs, especially on the south and east shores of St. George; comes very early in the season, and selects some rocky shelf, secure from all enemies save man, where, making no nest whatever, but squatting on the rock itself, it lays a single, large, white, oblong-oval egg, and immediately commences the duty and the labor of incubation. It is of all the water-fowl the most devoted to its charge, for it will not be scared from the egg by any demonstration that may be made in the way of throwing rocks or yelling, and it will even die as it sits rather than take flight, as I have frequently witnessed. The fulmar lays about the 1st to the 5th of June. The egg is very palatable, fully equal to that of our domestic duck; indeed, it is somewhat like it. The natives prize them highly, and hence they undertake at St. George to gather their eggs by a method and a suspension supremely hazardous, as they lower themselves over cliffs five to seven hundred feet above the water. The sensation experienced by myself, when dangled over these precipices attached to a slight thong of raw-hide, with the surf boiling and churning three or four hundred feet below, and loose rocks rattling down from above, any one of which was sufficient to destroy life should it have struck me, is not a sensation to be expressed adequately by language; and, after having passed through the ordeal, I came to the surface perfectly satisfied with what I had called the improvidence of the Aleuts. They have quite sufficient excuse in my mind to be content with as few fulmar eggs as possible.* The "Lupus", laying so

* On the head at Tolstoi Mees, St. George, the natives pointed out to me a basaltic egg-shelf which marked the death of one of their townsmen. It occurred in the following singular manner: he, the victim, had been very successful in securing a large basket of the first

early as the 1st of June, is the only rival that the cormorant has with reference to early incubation. It never flies in flocks; it pairs early, and is then exceedingly quiet. I have never heard it utter a sound, save a low, droning croak when disgorging food for its young. The chick comes out a perfect puff-ball of white down, and gains its first plumage in about six weeks. It is a dull, gray-black at first, but by the end of the season it becomes like the parents in coloration, only much darker on the back and scapularies. They are the least edible, with the exception of the cormorant, of all bird-food found about the islands; and, like others of their family, they vomit up the putrid contents of their stomachs at the slightest provocation.

26. Stercorarius pomatorhinus. POMARINE JÄGER; "RAZ-BOI-NIK."

This bird is a rare visitor, and is the only specimen which I procured, and was the sole representative seen on the islands of its class. I found it perched in a listless attitude on the high mossy uplands between Kamminista and Polavina Sopka.

27. Stercorarius parasiticus. PARASITIC JÄGER.

I have seen but a few of these birds, also; the four or five examples of this species, in my collection, were all that I sighted, therefore it may be rated as an infrequent visitor; it seems to be tired out, and is found upon the grassy uplands, where it will alight and stand dozing in an indolent attitude for hours. The natives say that it is fond of the berries of the *Empetrum*, and in confirmation of their statement I found the half-digested remains of this fruit therein. No one of the three species of *Stercorarius*, which I have in my hands, was observed to breed here.

28. Stercorarius Buffoni. LONG-TAILED JÄGER.

Also seldom seen, and the specimen in my collection is one of the only two I ever observed on the islands. When I discovered them, July 29, 1872, they were apparently feeding upon insects and the fruit of the *Empetrum nigrum*.

29. Larus glaucus. BURGOMASTER: "CHIKIE."

This large, handsome gull, the finest of its race, is restricted in its breeding to Walrus islet alone; although it comes sailing over and around all the islands, in easy, graceful flight, every hour of the day, and frequently late in the fall will settle down by hundreds upon the carcasses of the killing-grounds. But, at Walrus islet this bird is at home, and here lays its eggs in neat nests built of sea-ferns and dry grass, placed among the turfy tussocks on the center of the islet. No foxes are found there. It remains by the Pribylov islands during the whole season, though it is sometimes driven by the ice in search of open water, fifty to one hundred miles south; it invariably returns soon after the floe disappears.

The "chikie" lays as early as the 1st to the 4th of June, depositing three eggs only, within a week or ten days. These eggs are large, spherically oval, have a dark, grayish-brown ground, with irregular patches of darker brown-black. They vary somewhat in size, but the shape and pattern of coloring is more constant than in any other species up here.

The young *burgomaster* comes from the shell at the expiration of the regular three weeks' incubation, wearing a pure white thick coat of fluffy down, which is speedily supplanted by a brownish-black and gray plumage with which the bird takes flight, having nearly attained the size of the parent in less than six aggregate weeks. This dark coat changes during the next three months to one nearly white, with the lavender gray back of the adult; the legs change from a sickly, pale, grayish tone, to the rich yellow-gray of the mature condition, and the bill also passes from a dull brown color to a bright yellow, with a red spot at the top of the lower mandible. It has a loud, shrill, eagle-like scream, becoming more monotonous by its repetition; and it also utters a low, chattering croak while coasting. It is a very cleanly bird about its nest, and keeps its plumage in a condition of snowy purity. It is not very numerous; I do not think that there were more than five or six hundred nesting on Walrus islet at the time of my visit in 1872.

30. Larus tridactylus var. **Kotzebui.** PACIFIC KITTIWAKE; "CHORNIE-NAUSHKIE GOVEROOSKIE."

This gull breeds here, by tens of thousands, in company with its first cousin, *Larus brevirostris*, coming at the same time but laying a week or ten days earlier than its relative. In all other respects it corresponds in habit and is in just about the same number. It is a remarkably constant bird in plumage coloration when adult, for I have failed to observe the slightest variation among the great numbers here under my notice. In building its nest it uses more grass and less mud-cement than the *brevirostris* does. The eggs are more pointed at the small end and lighter in the ground color, with numerous splotches of dark brown. The chick is difficult to distinguish with certainty from the *brevirostris*, and it is not until two or three weeks have passed that any difference can be noted between them as to the length of bill and color of feet.

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eggs of the season, and, desiring to continue the day's work, dispatched his wife back to the village with the oölogical burden, so that the basket might be emptied; meanwhile, in her absence, he put his little tethering-stake down anew, and, tying the rope of walrus or sea-lion hide to it, dropped over the brow of the cliff on it. A gaunt fox, which had been watching the proceedings, now ran up and fell to gnawing the rope, so taut and tense with the weight of the suspended egg-hunter below; the sharp teeth of Reynard, under the circumstances, instantly severed it, and the unfortunate native was dashed to the rocky shingle some 400 feet below, where his lifeless body was soon discovered. The poor fellow lost his life by having, at some earlier hour of the day, rubbed his yolk-smeared hands upon the sinewy strands, for at that place only did the hungry fox attack them.

31. Larus brevirostris. RED-LEGGED KITTEIWAK; "GOVEROOSKIE."

This beautiful gull is one of the most elegant of all birds on the wing, and is, perhaps, as handsome as any known to the sight, when it rests; it seems to delight in favoring these islands with its presence, to the exclusion of other land, coming here by tens of thousands to breed. Certain it is that my specimens testify to its special abundance, and that it is by far the most attractive of all of its kind; the short, symmetrical bill, large hazel eye with crimson lids, and rich coral or vermilion-red legs and feet, contrast beautifully with the snowy-white plumage of its head, neck, lavender back, and under parts.

Like *Larus glaucus*, this bird remains about the islands during the whole season, coming on the cliffs for the purpose of nest-building, breeding by the 9th of May and deserting the bluffs when the birds are fully fledged and ready for flight, early in October. It is much more prudent and cautious than the auks and the murres, for its nests are always placed on nearly inaccessible shelves and points of mural walls, so that seldom can one be reached, unless a person is lowered down to it by a rope passed over the cliff.

Nest-building is commenced early in May, and completed, generally, not much before the 1st of July; it uses dry grass and moss cemented with mud, which it gathers at the fresh-water pools and ponds scattered over the islands. The nest is solidly and neatly put up; the parents work together in its construction most diligently and amiably. Two eggs are the usual number, although occasionally three will be found in the nest. If these eggs are removed the female will renew them like the "arrie", in the course of another week or ten days. They are of the size and shape of a common hen's egg, but covered with a dark gray ground spotted and blotched with sepia patches. Once in a while an egg will have on the smaller end a large number of suffused blood-red spots. Both parents assist in the labor of incubation, which lasts a trifle longer than the usual time—from twenty-four to twenty-six days. The chick comes out with a pure white downy coat, a pale whitish-gray bill and feet, and rests helplessly in the nest until its feathers grow. During this period it is a comical-looking object. The natives capture them, now and then, to make pets of, always having a number every year scattered through the village, usually tied by one leg to a stake at the doors of their houses, where they become very tame; and, it is not until fall, when cold weather sets in, that they become restless and willingly leave their captivity for the freedom of the air. This bird is remarkably constant in its specific characters. Among the thousands and tens of thousands of them, I have never observed any variation in the coloration of the bills, feet, or plumage of the mature birds, with one exception. This is a variety, seldom seen, however, in which the feet are nearly yellow, or much more yellow than red, and the edge of the eyelid is black instead of being normally scarlet; there is also a dark patch back of each eye in these odd specimens. The abnormal color of the feet is, probably, due to sheer accidental individual peculiarity, while the eye-patch and absence of bright color from the eyelids may depend upon the season.

32. Colymbus arcticus. BLACK-THROATED DIVER.

When surveying Zapadnie, July, 1873, in measuring my angles on the beach, I came across the form of this bird, thrown up, nearly dead, by the surf, under my feet. It is the only one I have seen upon the islands, and I called the attention of the old wiseacres of the village to it. Whereupon, after much deliberation and guttural Aleutian vocalization, they informed me that they had never noticed it before around the island, though one aged man declared to the contrary, and submitted his minority report with great emphasis and much gravity. At all events, it is seldom seen here. The bird in question was a fine adult specimen, and it is interesting to observe that it is the true *Colymbus arcticus* and not var. *pacificus*, which might naturally have been expected.

33. Podiceps griseigena. RED-NECKED GREBE.

As in the case of the diver above cited, the present specimen is a typical form rather than a North American variety. It was the only specimen seen during my residence on the island. It has, however, been observed by the natives heretofore, though they affirm that it is uncommon; also, a straggler, in my opinion.

34. Fratercula corniculata. HORNED PUFFIN; "EPATKA."

My first impression when I saw one of these odd-looking birds, with its large shovel-like, lemon-yellow and red bill, as it sat squatted in glum silence on the rocky cliff perches, was one of great amusement, and it stared back at me in stolid wonder as I laughed. Of all birds in these latitudes, it seems to have been fashioned with a special regard to the fantastic and ludicrous. This mormon, in common with one other species, *M. cirrhata*, comes up from the sea in the south to the cliffs of the islands about the 10th of May, always in pairs, never coming singly to, or going away from, the Pribylovs in flocks. It makes a nest of dried sea-ferns, grass, and moss, slovenly laid together, far back in some deep or rocky crevice, where, when the egg is laid, it is ninety-nine times out of a hundred cases, inaccessible; nothing but blasting-powder would open a passage to it for man. It has this peculiarity: it is the only bird on these islands which seems to quarrel forever and ever with its mate. The hollow reverberations of its anger, scolding, and vituperation from the nuptial chamber, are the most characteristic sounds, and indeed the only ones that come from the recesses of the rocks. No sympathy need be expended on the female. She is just as big and just as violent as her lord and master. The nest contains but a single egg, large, oblong, oval, pure white; and, contrary to the custom of the gulls, arries, and choochkies, when the egg is removed the sea-parrot does not renew it, but deserts the nest, perhaps locating elsewhere. The young chick I have not been able to get until it becomes

fledged and ready for flight in August; then it does not differ materially from its parent. Only the absence of the auricular plumes can be noted. The *Epatka* leaves the island about the 10th of September, spending, I believe, the rest of the time at sea. Except when quarreling in the nesting caverns, this bird is very quiet and unobtrusive. It does not come in large numbers to the islands, for it breeds everywhere else in Bering sea, and along the northwest coast as far south as Cross sound. Its flight is performed with quick and rapid wing-beats, in a straight and steady course. There is no difference between the sexes as to shape, size, or plumage.

35. Fratercula cirrhata. TUFTED PUFFIN; "TAWPORKIE."

This bird comes to the island at about the same time as its cousin, just preceding, and resembles the "Epatkie" in its habits, generally, being quite as conspicuous a domestic scold. It lays a single large white egg of a rounded oval shape. I was not able to see a newly-hatched chick, owing to the retired and inaccessible breeding places; for, whenever I could find an egg I seized upon it instantly, not daring to wait for the culmination of hatching. I think that Walrus islet, if visited frequently during the close of the hatching-season, would afford an opportunity to study the young, because the nests, which were the only ones from which I could get eggs, are more easy of access. The young tawporkie, six weeks old, resembles the parents exactly, only the bill is lighter colored and the plumes on the head are incipient. Walrus islet is the only place where the birds can be daily seen and watched with satisfactory results. I took eggs from over 30 nests in July. The natives say that when it is mating, its cries sound like the growling of a bear, as they issue from far down under the rocks which cover its nest.

36. Phaleris psittacula. PARROQUET AUK; "BAILLIE BRÜSHKIE."

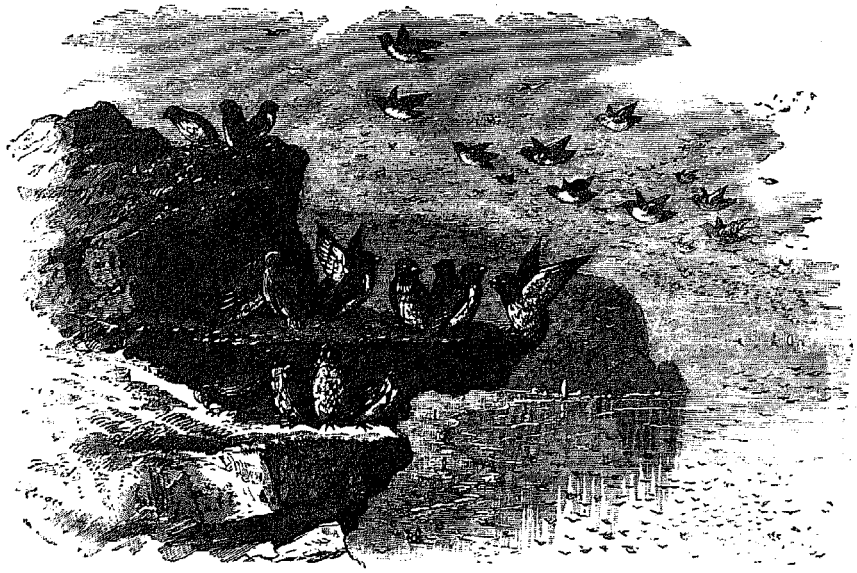
This quaintly-beaked bird is quite common on the Pribylov group, and can be obtained at St. George in large numbers. It comes to the islands early in May, mute and silent, locating its nest in a deep chink or crevice of some inaccessible cliff, where it lays a single egg and rears its young. It is very quiet and undemonstrative during the pairing season, its only note being a low, sonorous, vibrating whistle. Like *Simorhynchus cristatellus*, it will breed in company with the "choochkie", but will not follow that lively relative back upon the uplands, for the "baillie brüshkie" is always found on the shore line, and there only. The egg, which is laid upon the bare earth or rock, is pure white, oblong-ovate, measuring 1½ by 2½ inches. To obtain it is exceedingly difficult, owing to the bird's great caution in hiding and care in selecting some deep winding crevice in the face of a cliff. At the entrance to this nesting cavern, the parents will sometimes squat down and sit silently for hours at a time, if undisturbed. It does not fly about the islands in flocks, and seems to lead an unassuming, independent life by itself, caring nothing for the society of its kind. The young, when first hatched, I have not seen, but by the 10th or 15th of August they may be coming out for the first time from their secure retreats, and taking to wing as fully fledged as their parents. They leave the islands from the 20th of August to the 1st of September, and go out upon the North Pacific for the winter, where they find their food, which consists of *amphipoda* and fish-fry. I have never seen one among the thousands that were around me on the islands, opening bivalve-shells, such as mussels, as stated by a German author. It feeds at sea, flying out every morning and returning in the afternoon to its nest and mate. As in the case of the puffins nothing else than dynamite, or similar agency, could open the basaltic crevices in which the bird hides; and, of course, resort to this action would also destroy the egg; therefore, I was not able to gather much more than a baker's dozen of their eggs, though I could see at any time a thousand of the birds.

37. Simorhynchus cristatellus. CRESTED AUK; "CANOOSKIE."

This fantastic bird, the plumed knight of the Pribylov islands, is conspicuous by reason of its curling crest and bright crimson bill. It makes its appearance in early May, and repairs to chinks and holes in the rocky cliffs, or deep down below a huge bowlder and rough basaltic shingle, to deposit its egg upon the bare earth or rock, making no nest whatever; and, like the "brüshkie", so well do these birds succeed in secreting their charge, that although I was constantly upon the ground where several thousand pairs were laying, I was unable successfully to overturn the rocks under which they hide, and get more than four perfect eggs, the sum total of many hundred attempts. The note of the "canooskie", while mating, is a loud, clanging, *honk*-like sound; at all other seasons they are as silent as the grave. The crested auk lays but one egg, and the parents take turns, I am inclined to believe, in the labor of hatching and in that of feeding their young. The egg is rough, pure white, but with frequent discolorations, and, compared with the size and weight of the bird, is disproportionately large. It is an elongated oblong-oval, the smaller end being quite pointed. Length, 2.10; width, 1.40. I have not seen a chick, nor could I get any notes upon its appearance from the natives, but I have shot the young as they came out for the first time from their dark, secure, hiding places, full fledged, with the exception of their distinctive crest, being by this time, the 10th to 15th of August, as large as the old birds, and of the same color and feathering. The "canooskie", like its cousin, the "choochkie", has no sexual variation in size or plumage; males and females, to all external view, are precisely alike. The bright crimson bill varies, however, considerably in color, and in its strength and curve, the slenderer bill being confined, as far as I could see, to the young birds; some old ones had very pointed beaks also.

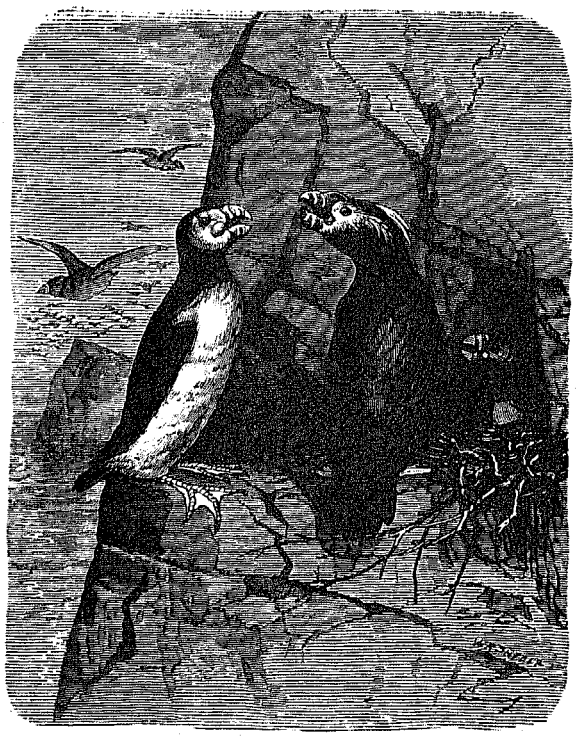
38. Simorhynchus pusillus. LEAST, OR KNOB-BILLED AUK; "CHOOCHKIE."

I take pleasure in writing the biography of this little bird, which is the most characteristic and the most



"CHOOCHKAMIE EDOOT!"

THE FULMAR'S NICHE.



"EPATKIE" AND "TAWPORKIE."

ORNITHOLOGICAL SKETCHES ON THE PRIBYLOV ISLANDS, BY THE AUTHOR.

Herewith presented through the courtesy of Harper Brothers.

interesting one of all the water-fowl frequenting the Pribylov islands, for it comes here every summer by millions to breed. It is comically indifferent to the proximity of man, and can be approached almost within an arm's length before taking flight, sitting squatted upright and eyeing you with its peculiar "watch-ring" optics, that wear an air of great wisdom combined with profound astonishment.

Usually, about the 1st or 4th of May, every year, the "choochkie" makes its first appearance around the islands for the season, in small flocks of a few hundred or thousand, hovering over and now and then alighting upon the water, sporting one with the other in apparent high glee, making an incessant, low, chattering sound; but they are only the van to flocks that by the 1st or 6th of June have swarmed in upon the islands, like those flights of locusts which staggered my credulity on the great plains of the west. They frequent the loose stony reefs and bowlder-bars on St. Paul, together with the cliffs on both islands; and what is most remarkable, they search out an area over five miles square of basaltic shingle on St. George island, which lies back and over, inland from the north shore-line. To the last position they come in greatest numbers; they make no nest, but lay a single egg far down below among the loose rocks, or they deposit it deep within the crevices or chinks in the faces of the bluffs.

Although, owing to their immense numbers, they seem to be in a state of great confusion, yet they pair off and conduct all of their billing and cooing down under the rocks, on the spot chosen for incubation; making, during this interesting period, a singular croaking sound more like a "devil's fiddle" than anything I have ever heard outside of a city's limits.

To walk over their breeding-grounds, at this season, is highly interesting and most amusing, as the noise of hundreds and thousands of these little birds, which are directly under your feet, gives rise to an endless variation of volume of sound, as it comes up from the stony holes and caverns below; while the birds come and go, in and out, whistling around your head, comically blinking and fluttering.

The male birds, and many of the females, regularly leave the breeding-grounds in the morning and go off to sea, where they feed on small water-shrimps and sea-fleas, returning to their nests and sitting partners, in the evening. It is one of the sights on St. George, this early morning departure and the early evening return of the myriads of choochkies to their nests. The *Simorhynchus* lays a single pure white egg, exceedingly variable in size and shape, usually oblong-oval with the smaller end pointed. I have several specimens almost spherical, and others drawn out into an elongated ellipse; but the oblong oval, with the pointed smaller end, is the prevailing type. Compared with the size and weight of the little bird, the egg is excessively large. Average length, 1.55; width, 1.12. The length of the bird, 3 inches; width, 2 inches. The general aspect of the egg is very much like that of the pigeon's, excepting the roughness of the shell. The chick is covered with a thick, uniform, dark, grayish-black down, which is speedily succeeded by feathers, all much darker than those of the parent, when it takes its flight from the island for the year, six weeks after hatching. Old birds feed their young by disgorging, never carrying anything up in their bills, and when the young leave, they are just as large and just as heavy as their parents. I am strongly inclined to think that the male bird feeds the female while incubating, but have not been able to verify this observation, as they are always hidden from sight at the time, and they cannot be told apart by size or color.

39. **Lomvia troile**, var. **californica**. MURRE; "GUILLEMOT."

Limited numbers of the Californian guillemot are found occasionally perched on the cliffs with the *arrie;* they can only be distinguished at a short distance by a practiced eye, for they resemble their allies so closely and conform so strictly to their habits, that it will be but repeating the description of the *L. arra*, given below, should I attempt it. The largest gathering in any one place, that I have seen on the islands, of these birds, was a squad of about fifty on the high bluffs at St. George, but they are generally scattered by ones, twos, and threes among thousands and tens of thousands of the *arra*.

40. **Lomvia arra**. THICK-BILLED GUILLEMOT; "ARRIE."

This is the only egg-bird that has the slightest economic value to man on the Pribylov islands. The bird itself is in bodily size a true counterpart of our ordinary barn-yard duck, only it cannot walk or even waddle as the domestic swimmer does. It lays a single egg, large and very fancifully colored; a bluish-green ground, shot with dark-brown mottlings and patches, but exceedingly variable as to definite size and color. The outline of the egg is pyriform, sometimes more acute, again more ovate. It is the most palatable of all the varieties found on the islands, except the fulmar; and when perfectly fresh I can testify to its practical equality with our deservedly prized hen's eggs; it never has any disagreeable flavor whatever, for the birds feed entirely upon marine crustacea. I have never found any fish in their craws.

This bird is the true *arra* of Pallas, a name derived undoubtedly from its striking similarity to the harsh sound uttered by the bird. It is present in immense multitudes, countless flocks, principally surrounding St. George island, although Walrus islet is fairly covered by them. They appear very early in the season, but are slow in laying, not beginning usually until the 18th or 25th of June. I feel quite well assured that these birds do not migrate far from Bering sea during the most severe winters, and in the milder hyemal seasons numbers of them are around the islands during the entire year. They lay their eggs upon the points and narrow shelves, on the faces

of the cliff-fronts to the islands, straddling over the eggs, side by side, as thickly as they can crowd, making no nests They quarrel desperately, but not by scolding; it is spirited action, and so earnestly do they fight, that all along below the high bluffs of the north shore of St. George, when I passed thereunder during the breeding-season, I stepped over hundreds of dead birds which had fallen and dashed themselves to death upon the rocks while clinched in combat with their rivals; for they seize one another in mid-air and hang with their strong mandibles so savagely to each other's skin and feathers, that, with the swift whirring of their powerful wings they are blinded to their peril, and strike the earth beneath ere they realize their danger and immediate death. Their curious straddling, whereby the egg is warmed and hatched, lasts nearly twenty-eight days, and then the young comes out with a dark, thick coat of down, which is supplanted by the plumage and color of the old bird, in less than six weeks. They are fed by the disgorging parents, seemingly without a moment's intermission, uttering, all the while between their gulps, a hoarse, harsh, croak, lugubrious enough.

The males and females have no sexual distinction as to size, shape, and plumage; their snow-white breasts are vividly contrasted with their shiny, chocolate necks; backs and wing-coverts are always black, while beneath them is a continuation of the pure white of the abdomen. They fly with an energetic action of their short, pointed pinions, a nervous, quick, and well-sustained flight, never swerving or deviating from their straight course after they once rise. They plump into the water like stones; and, unless the sea is running, it is difficult for them to take to wing from a smooth surface; this gives them little concern, however, inasmuch as they dive so freely.

It is fitting, perhaps, that I should say in connection with the final discussion of this bird, which closes my list of the avifauna peculiar to these strange islands, that its singular habit of circling St. George as it flies in the morning and in the evening, during the mating season, produces a very extraordinary demonstration as to the exceeding number of their kind; for instance at St. George island, while the females begin to sit over their eggs toward the end of June and first of July, at regular hours in the morning and in the evening, the males go flying around and around the island, in great files and platoons, always circling against, or quartering on, the wind; and they make in this way, during a sustained period of hours at a time, a dark girdle of birds more than a quarter of a mile broad and thirty miles long, flying so thickly together that the wings of one fairly strike those of the other; and, as they go, they whirl in swift, revolving, endless succession, during the periods just mentioned. This is a dress-parade of ornithological power, which I challenge the world to rival; certainly the Pribylov islands possess distinctive exhibitions of mammalia and aves, which are unrivaled.*

CLOSING MEMORANDA.—The above list of birds found on the Pribylov islands by myself in the seasons of 1872–'76, inclusive, is perhaps not exhaustive in its application to the straggling visitors; indeed, I think it more than likely that several names will be added by those who may pay the subject further attention; I do not enumerate the *Aegiothii* which I shot there June 21, 1872, because the specimens were so badly damaged by my coarse ammunition as to defy proper skinning; therefore I made alcoholics of them, and those collections have been mislaid since my return. Also the natives say that a small brown owl in the summer breeds on St. George, and the large Arctic or Snowy *Nyctea* is occasionally taken at either island. I saw none while there.

27. CATALOGUE OF THE FISHES OF THE PRIBYLOV GROUP.

[A memorandum of the fishes collected at the Pribylov islands, 1872–'73, by Henry W. Elliott.]

Anarrhichas lepturus. Rare; seals drive them off.
Gadus morrhua. "TREESCA."† Rare; seals drive them off.
Hippoglossus vulgaris. "POLTOOS." Common; only large ones caught.
Melletes papilio.‡ "KALOG." Common; a beach cottoid.

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*I have said, in my notes of introduction to this monograph, that I have been obliged to confine myself in its preparation entirely to my own observations and field-work; when, therefore, I speak as above of such immense myriads of water-fowl, I fear that some kindly critic may declare truly I remind him of worthy Master Gerard, who, in 1636, speaking of Irish birds, announced that the common barnacle goose, *Branta leucopsis*, was produced in a wonderful fashion, and proceeded to describe its growth from the mollusk, *Pentelasmis anatifera*, in the most circumstantial manner, prefacing this amazing story by a voucher couched in these words: "What our eyes have seen, and hands have touched, we shall declare;" also he gives a figure showing the metamorphosis going on from the shell into the goose! This cirrhipodous origin of the bird in question has not been agreed to, in spite of the weight of evidence, but strangely enough its generic name has been given and retained in accordance with the fable, and the barnacle itself is still called by conchologists "the five-pointed goose bearer"! or *Pentelasmis anatifera*.

†The St. George natives have caught codfish just off the Tolstoi head early in June, but it is a rare occurrence; by going out two or three miles from the village at either island, during July and August, the native fisherman usually captures large halibut; not in abundance, however. The St. Paul people, as well as their relatives on St. George, fish in small, "one hole" bidarkies; they venture together in squads of four to six; one man alone in the kyack is not able to secure a "bolshoi poltoos"; the method, when the halibut is hooked, is to call for your nearest neighbor in his bidarka, who paddles swiftly up; you extend your paddle to him, retaining your own hold, and he grasps it, then you seize his in turn, thus making it impossible to capsize, while the large and powerfully struggling fish is brought to the surface between the canoes, and knocked on the head; it is then towed ashore and carried, in triumph, to the lucky captor's house.

‡New genus and species determined by Dr. Tarleton H. Bean, based upon my type specimen.

Cottus niger.* "KALOG." Common; a beach cottoid.
Muræenoides maxillaris.* Rare; a beach fish.
Liparis gibbus.* Rare.
Gasterosteus cataphractus. Common; found in lagoon.
Gasterosteus pungitius. Common; found in lagoon.

28. NOTES ON THE INVERTEBRATES.

FIELD NOTES UPON THE ENTOMOLOGY, MALACOLOGY, BOTANY, ETC.—Touching a specific list of the insect life here, I regret exceedingly that my collections covering this head, as well as those which include the two following orders, have been unaccountably mislaid; consequently, I shall not reproduce the hastily and naturally imperfect memoranda which I made of them when they were packed on St. Paul island in 1872.

LIMITED NUMBER OF INSECTS ON THE PRIBYLOV ISLANDS.—The variety and abundance of entomological life here is not great, with the marked exception of a few species of beetles and flesh flies on the killing-grounds. The green and golden *carabus* is, however, found distributed in great numbers all over the islands.

SCANTY MOLLUSCAN REPRESENTATION ON THE SEAL-ISLANDS.—I qualify my statements made at the introduction to this memoir, by saying that the terrestrial and littoral forms of mollusca on and around the Pribylov group are scant in number; but I believe that the pelagic life in this respect will be found quite rich. For instance, I never saw any live specimens of the *Neptunianæ*. All the shells of this character collected had been cast up by the surf and were empty. The largest live gasteropod that came under my notice was a species of *Murex*. As the above sketch plainly shows, the conchologist has not a very extensive field here, though doubtless search bent directly to this end would develop a much better catalogue. If a dredge were patiently and energetically used around these islands, I am very sure that many new forms would be found, which give us tangible evidence of their being, by land and beach hunting for them. My time was so thoroughly engrossed on the rookeries that I had not a single day to spare during the only season of the year in which I could work with my dredge. The rough water and weather that prevail when the seals are not about, prevented my following up the mollusks in this manner.

SEA EGGS, OR SEA URCHINS: TOXOPNEUSTES.—Frequently the natives have brought a dish of sea-urchins' viscera for our table, offering it as a great delicacy. I do not think any of us did more that to taste it. The native women are the chief hunters for *Echinoidæ*, and during the whole spring and summer seasons they may be seen at both islands, wading in the pools at low water, with their scanty skirts high up, eagerly laying possessive hands upon every "bristling" egg that shows itself. They vary this search by poking, with a short-handled hook, into holes and rocky crevices for a small cottoid fish, which is also found here at low water in this manner. Specimens of this "kalog," which I brought down, declared themselves as representatives of a new departure from all other recognized forms in which the sculpin is known to sport; hence the name, generic and specific, *Melletes papilio*.

The "sand-cake", *Echinarachnius* sp., is also very common here.

FINE TABLE CRAB: CHIONOECETES.—By the 28th of May to the middle of June, a fine table crab, large, fat, and sweet, with a light, brittle shell, is taken while it is skurrying in and out of the lagoon as the tide ebbs and flows. It is the best-flavored crustacean known to Alaskan waters; they are taken nowhere else, at St. Paul; and when on St. George I failed to see one. I am not certain as to the accuracy of the season of running, viz, 28th May to 15th June, inasmuch as that one of my little note-books on which this date is recorded turns out missing at the present writing, and I am obliged to give it from memory. The only economic shell-fish which the islands afford is embodied in the *Chionœcetes opilio* (?). The natives affirm the existence of mussels here in abundance when the Pribylov group was first discovered, but now only a small supply of inferior size and quality is to be found.

MARINE SKELETON-MAKERS: BEAUTIFUL WORK OF SEA-FLEAS.—The service which swarms of *Amphidous crustaceans* rendered me in cleaning the bones of birds, fish, and even seals, cannot be too highly eulogized. Only in that small bight, however, known as the "Cove", near the village of St. Paul, could I get the work done; because at no other spot on the Pribylov islands was the sea-water quiet enough. By taking common hard-bread boxes, which the company's agent gave me from the store, and substituting a slatted cover, I would, by rock-ballasting, sink this with fifteen or twenty bird carcasses in the water here at low tide. When a single flow and ebb had taken place, I had the box taken promptly out, never failing to find every skeleton perfectly polished, yet entirely articulated; the most delicate bones in a fish's head or fins were intact. The strong food which the blubber of the seal carcasses afford acts so as to gorge and stupefy these little ghouls of the ocean, for I did not succeed well at all with such attempts. The bones of *Callorhinus* would have to lay submerged in the cove for weeks, sometimes, ere they were eaten free of flesh, fat, etc.; then, when taken out, they would be sadly discolored by the salt water, turned black and dingy in streaks and sections.

*New species.

29. NOTES ON THE PLANTS.

THE PRINCIPAL VEGETATION OF THE PRIBYLOV GROUP: ABSENCE OF TREES.—That spruce trees can be made to live transplanted from indigenous localities to the barren slopes of the Aleutian islands has been demonstrated; but in living, these trees scarcely grow to any appreciable degree. Evergreens were transferred to Oonalashka, when Veniaminov was at work there in 1830–'35. They are still standing and keep green, yet the change which such a long lapse of time should produce by growth has been as difficult to determine as it is to find evidence of increased altitude to the mountains around them since these Sitkan trees were planted, with pious hope, at their feet fifty years ago. Though I can readily understand why the salmon berries of Oonalashka should not do well on the seal-islands (still I think they would at the Garden cove of St. George), nevertheless I believe that the whortleberries of that section would thrive at many places, if carefully transplanted to these localities, on the southern slopes of Cemetery ridge at Zapadnie, the southern slopes of Telegraph hill, and eastern fall of Tolstoi peninsula down to the shore of the lagoon. They might also do well set out at picked places about the Big lake and on Northeast point, around the little lake thereon. If these bushes really throve here, they would be the means of adding greatly to the comfort of the inhabitants; for the Oonalashka whortleberry is an exceeding pleasant, juicy fruit, large and well adapted for canning and preserving. Having less sunshine here than at Illoolook, it may not ripen up as well flavored, but would, I think, succeed. The roots of the plants when brought up from Oonalashka in April or early May, should be kept moist by wet moss wrappings, from the moment they are first taken up until they are reset, with the tops well pruned back, on the Pribylov islands. The experiment is surely worth all the trouble of making, and I hope it will be undertaken.

THE CHARACTERISTIC "TALNEEK": SALIX.—The only suggestion of a tree found growing on the Pribylov group is the hardy "talneek" or creeping willow; there are three species of the genus *Salix* found here, viz, *reticulata*, *polaris*, and *arctica*; the first named is the most common and of largest growth; it progresses exactly as a cucumber vine does in our gardens; as soon as it has made from the seed a sprout of six inches or a foot upright from the soil, then it droops over and crawls along prostrate upon the earth, rocks, and sphagnum; some of the largest talneek trunks will measure eight or ten feet in decumbent length along the ground, and are as large around the stump as an average wrist of man. The usual size, however, is very, very much less; while the stems of *polaris* and *arctica* scarcely ever reach the diameter of a pencil case, or the procumbent length of two feet.

Although *Rubus chamæmorus* is a tree shrub, and is found here very commonly distributed, yet it grows such a slender, diminutive bush, that it gives no thought whatever of its being anything of the sort. The herbs, grasses, and ferns tower above it on all sides.

FAMILIAR AND LOVELY FLOWERING PLANTS.—Perhaps no one plant that flowers on the seal-islands is more conspicuous or abundant than is the *Saxifraga oppositifolia*; it rises over all localities, rank and tall in rich locations, to stems scarcely one inch high on the thin, poor soil of hill summits and sides; densely cespitose, with leaves all imbricated in four rows; and flowers almost sessile. I think that at least ten well-defined species of this order, *Saxifragaceæ*, exist on the Pribylov group. The *Ranunculaceæ* are not so numerous; but, still, a buttercup growing in every low slope, where you may chance to wander, is always a pleasant reminder of pastures at home; and, also, a suggestion of the farm is constantly made by the luxuriant inflorescence of the wild mustard, *Cruciferæ*. The chickweed, *Caryophyllaceæ*, is well represented, and also the familiar dandelion, *Taraxacum palustre*. The lichens, *Thallophytes*, and the mosses, *Musci*, are in their greatest exuberance, variety, and beauty here; and myriads of yellow poppies, *Papaveraceæ*, are nodding their graceful heads in the sweeping of the wind—they are the first flowers to bloom, and the last to fade.

The chief economic value rendered by the botany of the Pribylov islands to the natives, is the abundance of the basket-making rushes, *Juncaceæ*, which the old "barbies" gather in the margins of many of the lakes and pools.

MUSHROOMS AT ST. PAUL.—The fungoid growths on the Pribylov islands are abundant and varied, especially in and around the vicinity of the rookeries and the killing-grounds. On the west slope of the Black Bluffs at St. Paul, the mushroom, *Agaricus campestris*, was gathered in the season of 1872 by the natives, and eaten by one or two families in the village, who had learned from the Russians to cook them nicely. These seal-island mushrooms have deeper tones of pink and purple red in their gills than do those of my gathering in the states. I kicked over many large spherical "puff-balls", *Lycoperdons*, in my tundra walks; myriads of smaller ones, *Lycoperdon cinereum* (?), cover patches near the spots where carcasses have long since rotted, together with a pale-gray fungus, *Agaricus fimiputris*, exceedingly delicate and frosted exquisitely. Some ligneous fungi, *Clavariæ*, will be found attached to the decaying stems of *Salix reticulata* (creeping willows). The irregularity of the annual growing of the agarics, and their rapid growth when they do appear, make their determination excessively difficult; they are as unstable in their visits as are several of the *Lepidoptera*. The cool humidity of climate during the summer season on the Pribylov islands is especially adapted to the mysterious, but beautiful growth of these plants—the apotheosis of decay. The coloring of several varieties is very bright and attractive, shading from a purplish scarlet to a pallid white.

DIVERSE ELEGANCE AND SERVICES OF THE CRYPTOGAMS.—The range and diverse beauties of the numerous mosses and lichens on these Pribylov islands must serve as an agreeable and interesting study to any one who has the slightest love for nature. They undoubtedly formed the first covering to the naked rocks, after those basaltic foundations had been reared upon and above the bed of the sea—bare and naked cliffs and bowlders, which with calm intrepidity presented their callous fronts to the ice-wedging chisels of the Frost King; rain, wind, and thawing moods destroyed their iron-bound strongness; particles larger and finer washed down and away made a surface of soil which slowly became more and more capable of sustaining vegetable life. In this virgin earth, says an old author—

> The wind brings a small seed, which at first generates a diminutive moss, which, spreading by degrees, with its tender and minute texture, resists, however, the most intense cold, and extends over the whole a verdant velvet carpet. In fact, these mosses are the medicines and the nurses of the other inhabitants of the vegetable kingdom [in the North]. The bottom parts of the mosses, which perish and moulder away yearly, mingling with the dissolved but as yet crude parts of the earth, communicate to it organized particles, which contribute to the growth and nourishment of other plants; they likewise yield salts and unguinous phlogistic particles for the nourishment of future vegetable colonies. The seeds of other plants, which the sea and winds, or else the birds in their plumage, bring from distant shores, and scatter among the mosses.

Then the botanist needs no prompting when he observes the maternal care of those mosses that screen the tender new arrivals from the cold, and imbue them with the moisture which they have stored up, and—

> Nourish them with their own oily exhalations so that they grow, increase, and at length bear seeds, and afterward dying, add to the unguinous nutritive particles of the earth, and at the same time diffuse over this new earth and mosses more seeds, the earnest of a numerous posterity.

The following species of algæ were collected in 1872–'73, by the author:

MELANOSPERMÆ.

(All called "Kapoosta"; natives.)

Fucus vesiculosus. Common; anchored in large beds.
Nereocystis Lütkeanus. ("SEA-OTTER RAFTS.") Common.
Alaria esculenta. Common. This has been used by the Pribylov natives as an article of food relish.
Chordaria flagelliformis. Common.
Elachista fucicola. Common.

RHODOSPERMÆ.

Polysiphonia. Rare.
Melobesia polymorpha. Common.
Melobesia lichenoides. Common.
Delesseria. Rare.
Peyssonnelia. Common.
Collishamnion. Common.

CHLOROSPERMÆ.

Cladophora uncialis. Common.
Conferva capillaris. Common (fresh-water lakes and pools).
Nostochinea. Common (fresh-water lakes and pools).
Ulva latissima. Common.

The above names do not pretend to specify the entire list that will be found here, but they simply indicate those varieties which are dominant.

LUXURIANCE AND VARIETY OF THE SEA-WEEDS.—The extent and luxuriance, variety and beauty of the algæ forests of these waters of Bering sea which lave the coasts of the Pribylov group, call for more detail of description than space in this memoir will allow, since anything like a fair presentation of the subject would require the reproduction of my water-colored drawings. After the heavier gales, especially the southeasters in October, if the naturalist will take the trouble to pace the sand-beach between Lukannon and Northeast point of St. Paul island, he will be rewarded by a memorable sight. He will find thrown up by the surf a vast windrow of kelp along the whole eight or ten miles of this walk, heaped, at some spots, nearly as high as his head; the large trunks of *Melanospermæ*, the small, but brilliant red and crimson fronds of *Rhodospermæ* interwoven with the emerald green leaves of the *Chlorospermæ*. The first-named group is by far the most abundant, and upon its decaying, fermenting brown and ocher heaps, he will see countless numbers of a buccinoid whelk, and a limnaca, feeding as they bore or suck out myriads of tiny holes in the leaf fronds of the strong growing species.

SEA-ANEMONES AND STAR-FISHES.—*Actinias* or sea-anemones occur, together with numerous starfishes; many jelly-fishes are also interwoven and heaped up with the "kapoosta" or sea-cabbages just referred to; also, a quantity of rosy "sea-squirts" and yellow "sea-cucumbers".

CONFERVOID RUGS AND CARPETS.—On the old killing-fields, on those spots where the sloughing carcasses of

repeated seasons have so enriched the soil as to render it like fire to most vegetation, a silken green *Confervæ* grows luxuriantly. This terrestrial algoid covering appears here and there, on these grounds, like so many door-mats of pea-green wool. That confervoid flourishes only on those spots where nothing but pure decaying animal matter is found. An admixture of sand or earth will always supplant it by raising up instead those strong growing grasses which I have alluded to elsewhere, and which constitute the chief botanical life on the killing-grounds.

PRECAUTIONS NECESSARY TO SUCCESSFUL BOTANICAL WORK.—If the following hints will serve to save the next collection of botanical specimens that may be gathered on these islands, it is not superfluous to print them here. Let the collector take a large amount of bibulous paper, and a small room all to himself; in the center of this apartment place a little stove, with an "organ" pipe; then fit up a series of broad library shelves around the walls from the floor to the ceiling; upon these shelves he will be enabled, aided by a low, steady fire, to dry the intensely juicy leguminosæ, and several other exceedingly thick and watery stemmed plants so peculiar to the Pribylov islands, thus save their color, and prevent them from turning black; a little fire must be kept in the room all the time that the collection is in the process of curing, and also after it is ready for use, ere leaving the islands. When shipped it should be hung up, well boxed, in the fire-room of the steamer; or else, if the voyage happens to be unusually foggy and dilatory, it will sweat in the hold, or cabin even, and be entirely destroyed before San Francisco is reached. I give these remarks advisedly and feelingly, for I lost the result of a hard season's work in this line of collection. By not appreciating these desiderata, another naturalist may come here as I did, be charmed with the flora, as well as the fauna, and after gathering hundreds of specimens at the expense of weary weeks of constant tramping, lose them all.

COURTESIES EXTENDED TO NATURALISTS.—The Alaska Commercial Company afforded me every facility that I had the ingenuity to ask for—giving me the unrestricted use of their men, their buildings, and their experience. Had it been the direct labor of the company instead of that in which I was engaged, I could not have had more attention paid to me and my pursuits. They stand ready to do as much again for any other accredited naturalist who may follow in my path over the Pribylov islands while they have control; this they will possess for nearly another decade hence.

30. VENIAMINOV ON THE RUSSIAN SEAL-INDUSTRY AT THE PRIBYLOV ISLANDS.

[Translated by the author, from Veniaminov's *Zapieskie*, etc.; St. Petersburg, 1842; vol. ii, pp. 568.*]

INDISCRIMINATE SLAUGHTER BY THE FIRST DISCOVERERS.—From the time of the discovery of the Pribylov islands up to 1805 (or, that is, until the time of the arrival in America of General Resanov), the taking of fur-seals on both islands progressed without count or lists, and without responsible heads or chiefs, because then (1787 to 1805, inclusive) there were a number of companies, represented by as many agents or leaders, and all of them vied with each other in taking as many as they could before the killing was stopped. After this, in 1806 and 1807, there were no seals taken, and nearly all the people were removed to Oonalashka.

PARTIAL CHECK ORDERED.—In 1808 killing was again commenced; but the people in this year were allowed to kill only on St. George. On St. Paul hunters were not permitted this year or the next. It was not until the fourth year after this that as many as half the number previously taken were annually killed. From this time (St. George 1808, and St. Paul 1810) up to 1822, taking fur-seals progressed on both islands without economy and with slight circumspection, as if there was a race in killing for the most skins. Cows were taken in the drives and killed, and were also driven from the rookeries to places where they were slaughtered.

It was only in 1822 that G. Moorayvev (governor) ordered that young seals should be spared every year for breeding, and from that time there were taken from the Pribylov islands, instead of 40,000 to 50,000, which Moorayvev ordered to be spared in four successive years, no more than 8,000 to 10,000. Since this, G. Chestyahkov, chief ruler after Moorayvev, estimated that from the increase resulting from the legislation of Moorayvev, which was so honestly carried out on the Pribylov islands, that in these four years the seals on St. Paul had increased to double their previous number, (*that*) he could give an order which increased the number to be annually slain to 40,000; and this last order or course directed for these islands, demanded as many seals as could be got; but with all possible exertion hardly 28,000 were obtained.

POOR RESULTS.—After this, when it was most plainly seen that the seals were, on account of this wicked killing, steadily growing less and less in number, the directions were observed for greater caution in killing the grown seals and young females, which came in with the droves of killing-seals, and to endeavor to separate, if possible, these from those which should be slain.

PARTIAL CHECKS AGAIN ORDERED.—But all this hardly served to do more than keep the seals at one figure or number, and hence did not cause an increase. Finally, in 1834, the governor of the company, upon the clear (*or "handsome"*) argument of Baron Wrangel, which was placed before him, resolved to make new regulations respecting them, to take effect in the same year (1834), and, following this, on the island of St. Paul only 4,000 were killed, instead of 12,000.

* The italics are mine, and my translation is nearly literal, as might be inferred by the idiom here and there.—H. W. E.

On the island of St. George the seals were allowed to rest in 1826 and 1827, and since that time greater caution and care have been observed, and headmen or foremen have kept a careful count of the killing.

From this it will be seen that no anxiety or care as to the preservation of the seal-life began until 1805 (*i. e.*, with the united companies).

It is further evident, that all half measures, seen or not seen, were useful no longer, as they only served to preserve a small portion of the seal-life, and only the last step (1834) with the present people or inhabitants has proved of benefit. And if such regulations of the company continue for fifteen years (*i. e.*, until 1849), it may be truly said that then the seal-life will be attracted quite rapidly, under the careful direction of headmen, so that in quite a short time a handsome yield may be taken every year. In connection with this subject, if the company are moderate and these regulations are carried out, the seal-life will serve them and be depended upon, as shown in this volume, Table No. 2.

IDEAS OF THE OLD NATIVES.—Nearly all the old men think and assert that the seals which are spared every year ("*zapooskat kotov*"), *i. e.*, those which have not been killed for several years, are truly of little use for breeding, lying about as if they were outcasts or disfranchised. About these seals, they show that after the seals were spared, they were always less than they should be, as, for instance, on the island of St. George, after two years of saving or sparing of 5,500 seals, in the first year they got, instead of 10,000, or 8,000 as expected, only 4,778.

WHY THE SEALS DIMINISHED.—But this diminution, which is shown in the most convincing manner, is due to wrong and injustice, because it would not have been otherwise with any kind of animals—even cattle would have been exterminated—because a great many here think and count that the seal-mother brings forth her young in her third year, *i. e.*, the next two years after her own birth. As it is well shown here, the spared seals ("*zapooskie*") were not more than three years old, and therefore it was not possible to discern the correct and true numbers as they really were. Taking the females killed by the people, together with all the seals which were purposely spared, it was seen that the seal-mothers did not begin to bear earlier than the fifth year of their lives. Illustrative of this is the following:

(*a*) On the island of St. George, after the first "zapooka", in 1828, the killing of five-year-old seals was continued gradually up to five times as many as at first. With those of five years old the killing stopped. Then next year twelve times as many six-year-olds were observed on the islands, as compared with their number of the last year, and with or in the seventh year came seven times as many. This shows that females born in 1828 did not begin to bear young until their fifth year, and become with young accordingly; that the large ones did not appear or come in six years (from 1828), as is evident, for in the fifth year all the females did not bring forth.

(*b*) It is known that the male seals cannot become "seecatchies" (*adult bulls*) earlier than their fifth or sixth year; following this, it may be said that the female bears earlier than the fourth year.

(*c*) If the male seal cannot become a bull ("seecatchie") earlier than the fifth year, then, as Buffon remarks, "animals can live seven times the length of the period required for their maturity"; therefore, a "seecatch" cannot live less than thirty years, and a female not less than twenty-eight.*

VENIAMINOV'S BELIEF THAT FEMALES CANNOT BEAR YOUNG UNTIL FOUR YEARS OLD.—Taking the opinion of Buffon for ground in saying, that animals do not come to their full maturity until one-seventh of their lives has passed, it goes also to prove that the female seal cannot bear young before her fourth year.

It is, without doubt, a fact that female seals do not begin to bear young before their fifth year, *i. e.*, the next four years after the one of their birth, and not in the third or fourth year. That, however, is not the rule, but the exception. To make it more apparent that females cannot bear young in their third year, consider two-year-old females, and compare them with "seecatchie" (*adult bulls*) and cows (*adult females*), and it will be evident to all that this is impossible.

Do the females bear young every year; and how often in their lives do they bring forth?

HIS DOUBTS ON THE SUBJECT.—To settle this question is very difficult, for it is impossible to make any observations upon their movements; but I think that the females, in their younger years (or prime), bring forth every year, and as they get older, every other year; thus, according to people accustomed to them, they may each bring forth in their whole lives from ten to fifteen young, and even more. This opinion is founded on the fact that never (except in one year, 1832) have an excessive number of females been seen without young; that cows not pregnant hardly ever come to the Pribylov islands; that such females cannot be seen every year. As to how large a number of females do not bear, according to the opinions and personal observations of the old people, the following may be depended upon with confidence: not more than one-fifth of the mature or "effective" females are without young; but to avoid erroneous impressions or conflicting statements between others and myself, I have had but one season ("*trayt*") in which to personally observe and consider the multiplication of seals.

* "This remark is sustained by the observation of old men, and especially by one of the best Creoles, Shiesneekov, who was on the island of St. Paul in 1817, and who knows of one "seecatch" (known by a bald head), which in that time had already a large herd of cows or females, surrounded and hunted by a like number of females and strong, savage old bulls; therefore, it may be safely thought that this bull did not get his growth until his fifth year, and at this time he could not have been less than ten years old. And this same bull came every year to the island and the same place for fifteen years in succession, up to 1832, and it was only in the later years that his harem grew smaller and smaller in number."

HIS THOUGHTS ON BIRTH OF PUPS.—There is one more very important question in the consideration of the breeding or the increase of seals, and that is, of the number of young seals born in one year, how many are males; and is the number of males always the same in proportion to the females?

Judging from the "holluschickie" accumulated from the "zapooska" in 1822–'24 on the island of St. Paul, and in 1826–'27 on the island of St. George, the number of young males was widely variable; for example, on the island of St. Paul, in three years, 11,000 seals were spared, and in the following three years there were killed 7,000, *i. e.*, about two-thirds of the number saved; opposed to this, on the island of St. George, from 8,500 seals spared in two years, less than 3,000 were taken—hardly one-third.

Why this irregularity? Why should more young males be born at one time, and at another less? Or why should there be years in which many cows do not bear young?

According to the belief of the people here, I think that of the number of seals born every year, half are males and as many females (*i. e., the other half*).

TABLE NO. I: ITS USE.—To demonstrate the above-mentioned conditions of seal-life, the table No. I has been formed of the number of seals annually killed on the Pribylov islands, from 1817 to 1838 (when this work was ended).

From this it will be seen that—

1. No single successive year presents a good number of seals killed, as compared with the previous year; the number is always less.

2. The annual number of seals killed was not in a constant ratio.

3. And, therefore, in the regular hunting-season there is less need or occasion, during the next fifteen years, to demand the whole seal kind.

4. Fewer seals were killed in those years, generally, following a previous year in which there were larger numbers of the "holluschickie"; that is, when the young males were not completely destroyed, and more were killed when the number of "holluschickie" was less.

5. The number of "holluschickie" is a true register or showing of the number of seals; *i. e.*, if the "holluschickie" increase and exist like the young females, and conversely.

6. "Holluschickie" break from the (common) herd and gather by themselves no earlier than the third year, as seen in the case of the spared seals on the islands of St. George and St. Paul, the latter from 1822–'24 to 1835–'37, inclusive; the former from 1826–'27.

7. The number of seals killed on the island of St. George, after two years ("zapooska") was resumed, and gradually increased to five times as many.

8. In the fifth year from the first "zapooskie" (*or saving*) it became possible to count or reckon on the number remaining, and six-year-olds began to appear twelve times as numerous, and seven-year-olds came in numbers sevenfold greater than their previous small number; and, therefore, the number of three-year-old seals was quite constant.

9. If on the island of St. George, in 1826–'27, the seals had not had this rest ("*zapooska*"), and the killing had been continued, even at the diminished ratio of one-eighth, in 1840 or 1842 there would not have been a single seal left, as appears by the following table:

	Seals.		Seals.
1825	5,500	1833	1,360
1826	4,400	1834	1,190
1827	3,520	1835	1,040
1828	2,816	1836	850
1829	2,468	1837	700
1830	2,160	1838	580
1831	1,890	1839	500
1832	1,554	1840	400

10. RESULTS OF THE "ZAPOOSKA".—Following two years of "zapooska" (*saving*), the seal-life is enhanced for more than ten years, and the loss sustained by the company in the time of "zapooskov" (about 8,500) is made good in the long run. The case may be thus stated: if the company had not spared the seals in 1826–'27 they would have received, from 1826 to 1838 (twelve years), no more than 24,000, but by making this zapooska regulation for two years, they got in ten years 31,576, and, beyond this, they can yet take 15,000 without another, or any, zapooska.

11. And in this case, where such an insignificant number of seals was spared on St. George (about 8,500), and in such a short time (two years), the result was at once significant every year; that is, three times more appeared than the number spared. The result, therefore, must be large annually on the island of St. Paul, where, in consequence of the last orders or directions of the governor, already four years of saving have been in force, in which time over 30,000 seals have been left for breeding.

On this account, and in conformity with the above, I here present a table, a prophecy of the seals that are to come in the next fifteen years from 7,060 seals saved on the island of St. Paul in 1835.

On the island of St. Paul, at the direction of the governor, a "zapoosk" or saving was made of 12,700 seals; that is, before the year 1834 there were killed 12,700 seals, and on the following year, if this saving had not been

made, according to the testimony of the inhabitants, no more than 12,200 seals would or could have been taken from the islands, it being thought that this number (12,200) was only one twenty-fifth of the whole; but instead of killing 12,200, only 4,052 were taken, leaving in 1835, for breeding, 8,118 fresh young seals, males and females, together.

In making this hypothetical table of seals that are to come, I take the average killing, that is, one-eighth part, and proceed on the supposition that the number of saved seals will not be less than 7,060.

In the number of 7,060 seals we can calculate upon 3,600 females; that is, a slight majority of males. With the new females born under this "zapooska" I place half of those born the first year, and so on.

Females, in the twelve or eighteen years next after their birth, must become less in number from natural causes, and by the twenty-second year of their lives they must be quite useless for breeding.

Of the number of seals which may be born during the next four years of "zapooska", or longer, we may take half for females. This number is included in the table, and the males, or "holluschickie", make up the total.

TABLE NO. II: ITS SHOWING.—From the table II observe that—*

1. Old females, that is, those which in 1835 were capable of bearing young, in 1850 must be canceled (minus). They probably die in proportion of one-eighth of the whole number every year.

2. For the first four years of "zapooska", until the new females begin to bear, their number will be generally less.

3. A constant number of seals will continue during the first six years of their "zapooska"; in twelve, these seals will double; in fourteen years they will have increased threefold; and after fifteen years of this "zapooska" or saving of 7,060, in the first year, 24,000 may be taken from them; in the second, 28,000; in the third, 32,000; in the fourth, 36,000; in the fifth, 41,000; thus in five years more than 160,000 can be taken. Then, under the supervision of persons who will see that one-fifth of the seals be steadily spared, 32,000 may be taken every year for a long time.

4. Moreover, from the production of fifteen years' "zapooska", there can be taken from 60,000 to 70,000 "holluschickie", which, together with 160,000 seals, makes 230,000.

5. If this "zapooska" for the next fifteen years is not made for the seal-life, diminution will certainly ensue, and all this time, with all possible effort, no more than 50,000 seals will be taken.

Here it should be said that this hypothetical table of the probable increase of seals is made on the supposition of the decrease of females, and an average is taken accordingly. Furthermore, on the island of St. Paul, in 1836–'37, instead of 7,900 seals being killed, but 4,860 were taken. Hence, it follows that these 1,500 females thus saved in two years, and which are omitted from the table, will also make a very significant addition to the incoming seals. †

TABLE I, PART II.—*Bishop Veniaminov's Zapieska, etc., showing the seal-catch during the period of gradual diminution of life on the islands, from* 1817 *down to* 1837.

Taken from—	1817.	1818.	1819.	1820.	1821.	1822.	1823.	1824.	1825.	1826.	1827.
Saint Paul island	47,860	45,932	40,300	39,700	35,750	28,150	24,100	19,850	24,600	23,250	17,750
Saint George island	12,328	13,924	11,925	10,520	9,245	8,319	5,773	5,550	5,500	‡	1,950
Total	60,188	59,856	52,225	50,220	44,995	36,469	29,873	25,400	30,100	23,250	19,700

Taken from—	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	1836.	1837.
Saint Paul island	18,450	17,150	15,200	12,950	13,150	13,200	12,700	4,052	4,040	4,220
Saint George island	4,778	3,661	2,834	3,084	3,296	3,212	3,051	2,528	2,550	2,582
Total	23,228	20,811	18,034	16,034	16,446	16,412	15,751	6,580	6,590	6,802

Grand total for Saint Paul island	464,259
Grand total for Saint George island	114,665
Total catch during nineteen years of diminution	578,924

*The reader, in following the calculations of the Bishop, as exhibited by this table, must not forget to bear in mind, as he runs it over, that it is arranged with a sliding scale of increase, that counts steadily down from 1840 to 1849; and also, a sliding down scale of decrease, by reason of natural death-rates, that works steadily across these figures of increase just specified.—H. W. E.

†I translate this chapter of Veniaminov's without abridgment, although it is full of errors, to show that while the Russians gave this matter evidently much thought at headquarters, yet they failed to send some one on to the ground, who, by first making himself acquainted with the habits of the seals from close observation of their lives, should then be fitted to prepare rules and regulations founded upon this knowledge. These suggestions of Veniaminov were, however, a vast improvement on the work as it was conducted, and they were adopted at once; but it was not until 1845 that the great importance of never disturbing the breeding-seals was recognized.—H. W. E.

‡Left to breed.

TABLE II.—*Showing the number of seals that will visit the island in the next twenty-two years—a prophecy made by Veniaminov in* 1834.

	Years.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.
		1835.	1836.	1837.	1838.	1839.	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.
1	1835	3,600	0	0	0	0	900	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,000	800	400	200	.....	.....	.....
2	1836	0	3,150	0	.....	.....	.....	785	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,000	700	300	100	.....	.....
3	1837	.....	0	2,755	.....	.....	.....	.....	630	918	918	918	918	918	918	918	918	918	900	600	300	10	.....
4	1838	.....	.....	.....	2,410	.....	.....	.....	.....	600	805	805	805	805	805	805	805	805	805	750	500	300	
5	1839	.....	.....	.....	.....	2,110	.....	.....	.....	.....	450	700	700	700	700	700	700	700	700	700	700	600	400
6	1840	.....	.....	.....	.....	.....	1,845	.....	From old arrivals..		450	615	615	615	615	615	615	615	615	615	615	600	500
						New.	900	.....	From new comers..		152	200	200	200	200	200	200	200	200	200	200	150	100
7	1841	.....	.....	.....	.....	.....	.....	1,580	.....	.....	.....	315	525	525	525	525	525	525	525	525	525	525	500
						Total new..		1,985	.....	From new ones		420	572	572	572	572	572	572	572	572	572	572	500
8	1842	.....	.....	.....	.....	.....	.....	.....	1,355	.....	.....	.....	.....	325	451	451	451	451	451	451	451	451	451
							Total new..	2,930	.....	From new ones				650	909	909	909	909	909	909	909	909	909
9	1843	.....	.....	.....	.....	.....	.....	.....	.....	1,130	.....	.....	.....	.....	258	376	376	376	376	376	376	376	376
								Total new..	3,768	.....	From new ones			880	1,188	1,188	1,188	1,188	1,188	1,188	1,188	1,188
10	1844	.....	.....	.....	.....	.....	.....	.....	.....	.....	900	.....	.....	.....	225	300	300	300	300	300	300	300	300
									Total new..	4,423	.....	From new ones			1,020	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440
11	1845	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	725	.....	.....	.....	.....	180	241	241	241	241	241	241
										Total new...	5,275	.....	From new ones			1,240	1,687	1,687	1,687	1,687	1,687	1,687
12	1846	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	580	.....	.....	.....	.....	125	190	190	190	190	190	190
											Total new ...	6,225	.....	From new ones			1,500	1,994	1,994	1,994	1,994	1,994
13	1847	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	430	.....	.....	.....	.....	100	143	143	143	143
												Total new ...	7,560	.....	From new ones			1,810	2,420	2,420	2,420	2,420	
14	1848	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	250	.....	.....	.....	.....	61	83	83	83
													Total new ...	9,083	.....	From new ones.....			2,254	2,908	2,908	2,908
15	1849	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100	.....	.....	.....	.....	25	40	40
														Total new ...	10,654	.....	.....	.....	.....	2,550	3,187	3,187
Total ♀		3,600	3,150	2,755	2,410	2,110	2,745	3,565	4,285	4,898	5,323	6,060	6,805	7,990	9,333	10,754	12,369	14,158	16,148	18,216	20,820	20,105	19,358
Total ♂		3,460	3,150	2,755	2,410	2,110	2,745	3,435	4,215	4,102	5,378	6,000	6,795	8,010	9,267	10,746	12,331	14,147	16,102	18,184	20,824	20,095	19,342
All		7,060	6,300	5,510	4,820	4,220	5,490	7,000	8,500	9,700	10,700	12,000	13,600	16,000	18,600	21,500	24,700	28,300	32,250	36,400	41,640	40,200	38,700

From this table behold that—

a. Every fifteen years, from 3,600 females, there can be received in sixteen years 24,700 seals; in sixteen years still more; and in twenty years 41,640.

b. In the twenty-first year the incomes begin to diminish, provided that if in the meantime, or the following sixteen years, a certain number of young seals are not left to breed; and if every year a known number are left to breed, then in all following years the yield will never be less than 20,000 every year.

TABLE III.—*Calculation as to the taking of the seals on the island of St. George, made up from two years, and based upon that experience.* (1827–'28.)

Year.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	Grand total.
	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	1836.	1837.	
1.—1826	2,200	.....	.....	.....	.....	450	700	700	700	700	700	700	.....
2.—1827	Breeding..	2,050	.....	.....	.....	.....	360	600	600	600	600	600	.....
3.—1828	Light.....	.....	1,700	1,500	1,200	1,000	700	550	400	250	100	50	.....
Females	.....	.....	.....	.....	.....	1,450	1,760	1,850	1,700	1,550	1,400	1,350	.....
"Holluschickie"	2,200	2,050	1,600	1,500	1,200	.....	1,760	1,800	1,700	1,500	1,500	1,400	.....
Total	2,200	2,050	1,600	1,500	1,200	1,450	3,520	3,650	3,400	3,050	2,900	2,750	29,270

The actual taking of seals was as follows:

	Seals.
In 1828	4,778
In 1829	3,661
In 1830	2,834
In 1831	3,084
In 1832	3,296
In 1833	3,212
In 1834	3,051
In 1835	2,523
In 1836	2,550
In 1837	2,582
Total	31,576

From this table it will be seen that up to 1838 my calculation makes a yield of 29,270 seals; while the actual result was 31,576; making a difference of 2,306.

The difference determines that the hypothesis upon which the table is based is correct.

31. VENIAMINOV'S ACCOUNT OF THE DISCOVERY OF THE PRIBYLOV ISLANDS.*

LOCATION AND DISCOVERY.—Under the name of the Pribylov islands are known two small islands lying in Bering sea, between 56° and 57° north latitude, and 168° and 170° west longitude.

Stoörman G. Pribylov, who had been on the American coast for some time and observed the indications of islands in Bering sea, became convinced of their existence; and the embarassed circumstances of his company finally induced him to attempt their discovery. * * * He was considered one of the best navigators of that region. * * * For a long time he was in close vicinity to one of the islands subsequently named after him, but three weeks elapsed before he could get a sight of the same through the surrounding fog. At last fate or good fortune, coming to the assistance of an enterprising man, raised the curtain of the fog, and the eastern headland of the island (*Tolstoi Mees*) nearest to the Aleutian archipelago rose up before the navigators, filling them with inexpressible joy. This island was named by them, after their ship, "St. George". The "predovchik" (*or leader*) of the expedition, Yeafeem Popov, with all the hunters on the vessel, landed and remained on the newly-discovered island; but the vessel, failing to find any harbor, returned to winter at the Aleutian islands, carrying away a few fur-seals and sea-otters. The hunters who remained on the island of St. George sighted, on the 29th of June (*Justinian calendar*) of the following year (the day of the apostles Peter and Paul), an island to the northward, which they at once named "Peter and Paul", but the name of Peter was subsequently dropped from common usage. These islands have borne, since their discovery, a variety of names. At first they were called simply "Novie" (*new*); the Pribylov; and the "predovchik" named them Laibdevskie (the principal shareholder of the company was Laibedev). Shellikov named them "Zubovie" (*this was the name of the minister of interior at that time, who was a partner and shareholder also*); but among the hunters they attained the appellation of "Saivernie" (*northern*) on account of their situation north of Oonalashka, and "Kotovnie", or Seal-islands. At the present time (1838) they are often called simply "The Islands" in the colonies (*i. e., Alaska and Kamtchatka*). The name of Pribylov, as the one most justly applied, should be used throughout.

The change from summer to winter is abrupt. The number of clear days is exceedingly small. The sun is rarely visible between the 1st of May and the middle of August, and during nearly all that time it is impossible to see beyond the distance of a few fathoms ("*sajeens*"). For this reason these islands are so difficult to find, that out of twenty ships only one succeeded in reaching them by a straight course. They are visible only during easterly winds for a brief period, * * * but the constant winds probably counteract the exhalations (*from the carcasses*). Under the present circumstances (1838) it would be impossible to remedy the trouble; to kill the animals at a greater distance from the village would require an increased number of laborers to pack the skins and meat; and if the carcasses were burned, the smoke would probably drive away the animals, while there is neither soil nor labor sufficient to bury or to burn them. The latter process would also deprive the inhabitants of their fuel, as they employ bones and putrified meat for cooking purposes, in place of wood.

The food supply is ample even to luxury, especially on the island of St. Paul. The labor is severe, but only temporary, and the inhabitants have a great deal of time for themselves. A majority of them employ their leisure hours very well, teaching themselves and their children the rudiments of the Russian and Aleutian grammar, and with such success that of late, under the administration of the Creole, Shiesneekov, nearly all the males on St. Paul have learned to read. These people are not only richer, but more active and energetic in their labor as well as in their pious faith, than are their Aleutian brethren elsewhere; and altogether the inhabitants of St. Paul may be called the first among the Aleuts.

On account of the value of fur-seal and sea-otter skins shipped from these islands since their discovery, and up to the present time (1838), they might be called the "Golden islands", without estimating the 125,000 blue foxes and 50,000 sea-otters shipped from there during the first thirty years (*after their discovery*).

THE VILLAGES AS THEY WERE IN 1838.—The first and most important settlement was situated at the southwestern extremity of the island (*Zapadnie*). The second, which is the present site, on the southeastern point (*Village Hill*). In the village of to-day (1838) there is a wooden chapel in honor of the apostles Peter and Paul, erected in 1821, and nicely ornamented in the interior, at the expense of the resident Aleuts; a dwelling for the manager; a store, and a magazine, all built like the church, of neatly-dressed drift logs. In addition to this, there is a "kozarmie" (*barracoon*) built after the fashion of Aleutian "oölaghamuh" (*or large, communistic, underground habitations*) houses, a few private dwellings, and thirteen native barrabaras. A small wind-mill has been added of late.

*Translated, by the author, from Bishop Innocent Veniaminov's work, *Zapieska ob Ostrovah Oonahlashkenskaho Otdayla:* St. Petersburg, 1840. The only Russian treatise upon the subject found. Those selections most pertinent to the subject are introduced above in my translation. The italics are mine, and explanatory.—H. W. E.

The inhabitants subsist principally upon the flesh of fur-seals and sea-lions, with the addition of roots and a little flour. In the summer time, between June and September, halibut and some cod are caught around the shore, and altogether the living of these Aleuts is excellent and even luxurious, compared with that of their neighbors. The station is supplied with provisions and trading-goods from Sitka, the ship arriving annually in June and July. As there is no safe harbor, these vessels must receive and discharge their cargoes under sail.

In former years, up to 1820 or 1821, those islands were under the control of the Oonalashka office. The manager of St. Paul was, until the year 1834, also in charge of St. George, visiting the latter island every spring in a bidarkie; and, though these navigators cannot see from one island to the other, their journeys have been usually successful, with the exception of three occasions—twice the small craft missed the island of St. George (*going from St. Paul*), and pushed on to the coast of the Alaskan peninsula, where they finally secured a landing; and in the third instance, the bidarrah was lost altogether.

On the island of St. George there was no bay or entrance, with the exception of a shallow bight near the village (*Zapadnie*). This settlement contains a wooden chapel erected in honor to St. George, log buildings occupied by the agent of the company and his servants, and a number of barrabaras. * * * The inhabitants are, however, in less comfortable circumstances than those of St. Paul. Of provisions, they have a great abundance of sea lion meat, sea-birds and their eggs. The eggs are obtained by lowering a person over the precipitous cliffs, by means of seal-skin ropes. Many perish in this attempt from the friction of the strands against the sharp edges of the rocks; and occasionally the foxes have been known to gnaw off the ropes on which the hunters were suspended.

Occasionally shocks of earthquakes* still remind us of the volcanic origin of the Pribylov islands. Very heavy ones occurred repeatedly in April on both islands, when many overhanging cliffs were thrown into the sea. The inhabitants of the Pribylov islands belong to the parish of Oonalashka, the priest of which is obliged to visit them once every two years (*to marry, baptize, etc*). These islands were not known before the year 1786; mate G. Pribylov,† then in the service of a swan-hunting company, first, in the Russian name, found them, but at the same time he was not the first discoverer, because, as before said (Part I, chap. 1,) on one of them (southwest side of St. Paul) signs, such as a pipe, brass knife-handle, and traces of fire, were found, indicating that people had been there before, but not long, as places were observed where the grass had been burned and scorched. But if we can believe the Aleuts in what they relate, the islands were known to them long before they were visited by the Russians. They knew and called them "Ateek", after having heard about them.

Eegad-dah-geek, a son of an Oonimak chief by the name of Ah-kak-nee-kak, was taken out to sea in a bidarkie by a storm, the wind blowing strong from the south. He could not get back to the beach, nor could he make any other landing, and was obliged to run before the wind three or four days, when he brought up on St. Paul island, north from the land which he had been compelled to leave. Here he remained until autumn, and became acquainted with the hunting of different animals. Elegant weather one day setting in, he saw the peaks of Oonimak. He then resolved to put to sea, and return to receive the thanks of his people there; and, after three or four days of traveling, he arrived at Oonimak, with many otter tails and snouts.‡

NO VEGETATION ON THE ISLANDS.—The islands were both at first without vegetation, with the exception of St. Paul, where there was a small *talneek* creeping along on the ground; and on St. George, if we believe the accounts of the first ones there to see, nothing grew, even grass, except on the places where the carcasses of dead animals rotted. In the course of time both islands were covered with grass, a great part of it being of the sedge kind. On them are two varieties of berries, etc., etc.

EARLY STATUS OF THE COLONISTS.—The Aleuts serving the company here sustained the following relations between themselves and it, to wit: each of them worked without solicitation and at whatever was found, and to which they were directed, or at that which they understood. Payment for their toil was not established by the day

*These shocks probably occurred in 1796-'97, when Boga Slov island was raised, in April or May of that year, from the bed of Bering sea, 170 miles directly south of St. George. Such earthquakes were also characteristic of those sub-tropical fur-seal islands, Juan Fernandez and Masafuera.—H. W. E.

†Gehrman Pribylov, the discoverer of the seal-islands, was a native of "old Russia"; his father was one of the surviving sailors of the "St. Peter", which was wrecked, with Bering in command, November 4, 1741, on Bering island. The only reference, which I can find to him, is the vague incidental expressions used here and there, throughout an extended series of lengthy Russian letters published by Techmainov, as illustrative of the condition of affairs in regard to the Russian American Company. Pribylov was, when cruising, in 1783-'86, for the rumored seal-grounds, merely the first mate of the sloop "St. George". The captain and part owner was one M. Zubov, who was a member of a trading association then quite well organized in Alaska, and known as the "*Laibedev Lastochin*" company. It does not appear that Pribylov took any part in the business of sealing, other than that of remaining in charge of the company's vessels. He died while in discharge of these duties, at Sitka, March, 1796, on his ship, "The Three Saints" ("*Tree Svaytoi*").

Pribylov, himself, called these islands of his discovery, after Zubov; but the Russians then, and soon, unanimously indicated the group by its present well deserved title, "*Ostrovie Pribylova.*"—H. W. E.

‡Here Veniaminov says that he does feel inclined to believe this story, as the peaks of Oonimak can be seen occasionally from St. Paul. I have no hesitation in saying that they were never observed by any mortal eye from the Pribylov group. The wide expanse of water between these points, and the thick, foggy air of Bering sea, especially so at the season mentioned in this story above, will always make the mountains of Oonimak invisible to the eye from St. Paul island. A *mirage* is almost an impossibility; it may have been much more probable if the date was a winter one.—H. W. E.

or by the year, but in general for each thing taken by them or standing or put to their credit by the company; for instance, especially the skins of animals, the teeth of walrus, barrels of oil, etc. These sums, whatever they might be, were placed by the company to their credit, for all general hunting and working was established or fixed for the whole year fairly. The Aleuts, in general, received no specific wages, though they were not all alike or equal, there being usually three or four classes.

In these classes, to the last or least, the sick and old workmen were counted, although they were only burdens, and therefore they received the smaller shares, about 150 rubles, and the other and better classes received from 220 to 250 rubles a year. Those who were zealous were rewarded by the company with 50 to 100 rubles. The wives of the Aleuts, who worked only at the seal-hunting, received from 25 to 35 rubles.*

ANIMALS ON THE PRIBYLOV ISLANDS.—Foxes and mice. Sometimes the ice brings bears and red foxes. The bears were never allowed to live, since they could not be made useful; and also the red foxes, as they would only spoil the breed already existing, with regard to color of the fur.

Fur-seals, sea-lions, hair-seals, and a few walrus are the only animals that may be said to belong to the Pribylov islands.

BIRDS.—The *guillemots* (or *arries*); gulls; puffins; crested, horned, and white-breasted auks; snow-finches; geese (two kinds); a few kinds of *Tringa;* sea-ducks, black and gray. Most of these birds come here to lay, and with them *jägers*, hawks, owls, and "chikees" (big *Larus glaucus*), and the albatross is frequently to be seen around the beaches.

Sea-otters became scarce generally in 1811, and in the next thirty years extinct.

The fur-seals ("sea-cats") astonish us by their great numbers, as they gradually come up on to their breeding-places, notwithstanding harsh and foolish treatment of them, continued almost half a century (until 1824), without mercy.

RUSSIAN WASTE AND SLAUGHTER.—In the first years, on St. Paul island, from 50,000 to 60,000 were taken annually, and on St. George from 40,000 to 50,000 every year. Such horrible killing was neither necessary nor demanded. The skins were frequently taken without any list or count. In 1803, 800,000 seal-skins had accumulated, and it was impossible to make advantageous sale of so many skins; for in this great number so many were spoiled that it became necessary to cut or throw into the sea 700,000 pelts. If G. Resanov (our minister to Japan) had not given this his attention, and put himself between the animals and this foolish management of them, it appears plainly to me that these creatures would have long ago changed for the worse.

NO RECORDS PRIOR TO 1817: EARLY DRIVING.—Of the number of skins taken up to 1817, I have no knowledge to rely upon, but from that time and up to the present writing, I have true and reliable accounts, which I put in the appendix to this volume. From these lists it will be seen that still in 1820, on both islands, there were killed more than 50,000 seals, viz, on St. Paul, 39,700; and on St. George, 10,250. There were eye-witnesses to the reason for this diminution of the seals, and it is only wonderful, beside, that they are still existing, as they have been treated almost without mercy so many years. The cows produce only one pup each, every year. They have known deadly enemies, and also are still exposed to many foes unknown. From this killing of the seals they steadily grew less, except on one occasion, which was on St. George island, where an opportunity was given suddenly to kill a large number; but the circumstances do not seem to be important. On one occasion a drive was made of 15,000 male and female seals, but the night was dark, and it was not practicable to separate the cows from the males, and they were, therefore, allowed to stand over until daylight should come. The men put in charge of the herding of the drove were careless, and the seals took advantage of this negligence, and made an attempt to escape by throwing themselves from the bluffs over the beach near by into the sea; but, as this bluff was steep, high, rough, and slippery, they fell over and were all injured. Now, for the first time, great numbers of seals were missed, and why, it was not significant or apparent; but in the following year, instead of the appearance and catch of 40,000 or 50,000, less than 30,000 were killed and taken, and then, too, the numbers of seals were known to diminish, and in the same way, only greater, on the other island. For instance, in the first years, on the island of St. George, the seals were only five or six times less than on St. Paul, but in 1817 they were only less than one-fourth; but in 1826 they were almost one-sixth again.

The diminution of seals there (St. Paul) and on the other island, from 1817 to 1835, was very gradual and visible every year, but not always equal.

The killing of seals in 1834, instead of being 80,000 or 60,000, was only 15,751 from both islands (St. Paul, 12,700; St. George, 3,051).

SUM TOTAL OF FUR-SEALS TAKEN.—In the first thirty years (according to Veniaminov's best understanding),

* Compare this annual payment of the Russians with the cash settlement made every year by the Alaska Commercial Company, the present lessee of these islands, as indicated by a prior chapter on the condition of the business there.—H. W. E.

there were taken "more than two and a half millions of seal-skins"; then, in the next twenty-one years, up to 1838, they took 578,924. During this last taking, from 1817 to 1838, the skins were worth on an average "no more than 30 rubles each" ($6 apiece).*

A great many sea-otters (*Enhydra marina*) were found on St. Paul island at first, and as many as 50,000 were taken from the island, but years have passed since one has been seen in the vicinity, even, of the islands.

32. HISTORY OF THE ORGANIZATION OF THE RUSSIAN-AMERICAN FUR COMPANY.

PRIBYLOV ISLANDS PASS INTO ITS CONTROL.—The mention made by Veniaminov, of the occupation of the Pribylov islands immediately after their discovery by a score or so of rival traders and their butchering suites, is authentic; it is not necessary to paint the selfish details of the mercenary crews, as I find them drawn by several Slavic chroniclers. In 1799 the whole territory of Alaska went into the control of the Russian-American Company, and a picture of this organization, which managed affairs on the seal-islands for sixty-seven long years, may be interesting in this connection.

CAUSES OF EARLY RUSSIAN FUR-TRADE.—The accidental circumstances connected with Bering's ill-fated voyage in 1741, were the first direct means of impetus given to Russian exploration and trade in the waters of the North Pacific and Bering sea; the skins of the sea-otter and the blue foxes, in especial, which the survivors took from Bering island back to Kamtchatka and Russia, sold for such high prices that it stimulated a large number of hardy, reckless men to scour those seas in search of fur-bearing lands. This trade, thus commenced, was for many years carried on by individual adventurers, each of whom acted alternately as a seaman, as a hunter, and as a trader, solely for his individual profit.

INCEPTION OF THE RUSSIAN-AMERICAN COMPANY.—At length, however, an association was formed in 1785, among a number of Siberian merchants, to carry on the fur-trade of the North Pacific. It received the protection and encouragement of the Empress Catherine, who bestowed upon it many valuable privileges. G. Shellikov was the ruling spirit of the corporation. Catherine's son and successor, Paul, was at the outset of his reign, disposed to abolish these imperial advantages extended to this company, by his mother, on account of the heartless conduct of affairs in Alaska. Reasons of state, however, caused him to abandon this resolution; and he issued a "ukase" dated July 8, 1799, which granted to those united merchants, aforesaid, a charter, under the title of the Russian-American Company, that gave them exclusive use and control, for a period of twenty years, of all the coasts of America on the Pacific and the islands in that ocean, from Bering straits to the 55th degree of south latitude, together with the right of occupying any other territories not previously possessed by civilized nations. The residence of the directors of this company was first fixed at Irkutsk, Siberia, which was the great depository or bonded warehouse for the Chinese trade with all the Russias, a short distance only from Kiachta, on the frontier, where the Mongols and Muscovites alone could meet for barter; it was, afterward, transferred to St. Petersburg, and these directors were personally made known to and placed under the surveillance of the Imperial Department of Commerce.

Those privileges, thus accorded by Paul, were confirmed and extended, even, by Alexander; and under these favorable auspices the power and influence of the Russian-American Company rapidly advanced. In 1803 its establishments extended from Attoo to Sitka; during 1806 preparations were made to occupy the littoral regions north of the Columbia river, but that plan was soon abandoned.

AUTOCRATIC POWER OF THE RUSSIAN-AMERICAN COMPANY.—The government of Alaska by this company was arranged and directed in simple despotism; each trading post was superintended by a Russian overseer or "precashcheek", who, with the aid of a small number of Russians, maintained absolute control over all the natives in his district; he compelled them to labor incessantly, in and out of season, for the benefit of the company; these overseers were in turn under abject subserviency to a chief agent, one of which resided in the limits of four natural divisions of the country; those men were again directly responsible to the authority of the governor-general who resided at Sitka, and who was appointed really by the imperial government, though nominally by the directors; his powers were supposed to be limited and defined by regulations drawn up and signed by him in St. Petersburg; but, in fact, they were absolute, and irresponsible to any court on earth.

THE IRON-WILLED BARANOV.—The person who filled the office of governor-general soon after the organization of the Russian-American Company and for many years afterward, was Alexander Baranov; he was a man of iron will, of dauntless courage, shrewd and wholly devoid of tender feeling; under his autocratic management the affairs of this company prospered pecuniarily, and its stock rose accordingly in value; hence his proceedings were always approved at St. Petersburg, although the truth in regard to his cruelty was often made known there.

BAD REPUTATION OF PROMYSHLENIKS.—In addition to the natives themselves, the company transported to Alaska some four or five hundred Russians, who were termed "promyshleniks", or "hunters". They were employed as trappers, fishermen, seamen, soldiers or mechanics, just as their superiors might command, and they

*These quotations are in the Alaskan currency of that period, and refer to paper or parchment "rubles", each worth about 20 cents specie. See table of Russian weights, values, etc., in the Glossary.—H. W. E.

were under the same rule as that I have just described as applicable to the natives; their lot, according to Paul von Krusenstern, a Russian who voyaged thither in 1804–1805, seems to have been more uninviting even than that of the wretched natives.

BARANOV'S ATTEMPT TO COLONIZE CALIFORNIA.—Prior to 1812, Sitka was the extreme southern limit of the Russian-American Company. But old Baranov, greatly annoyed over the loss of supply ships from the Okotsk, by which their bread, at Kadiak and Sitka, was cut off for years at a time, determined to settle at some place south, where these necessaries to a comfortable physical existence could be raised from the soil; so he asked of the Spanish governor at Monterey permission to erect a few houses on the shore of the small bay at Bodega, California, in order to "procure and salt the meat of the wild cattle" which overran that part of the country, north of the harbor of San Francisco, for the "use of the governor's table at New Archangel" (Sitka). The Castilian was happy to oblige a peer; but, in the lapse of three or four years after this permit was granted, the Russians had formed a large settlement, built a fort, and had, in actuality, taken possession of the country. The Spanish governor first remonstrated, then commanded Baranov to move off, in the name of his most Catholic majesty, the king of Spain. He discovered quickly, to his infinite chagrin, that the Russian had abused his confidence, and defied him. The Spaniard could not enforce his order, and Kuskov, the Russian deputy in charge at Bodega, openly taunted and resisted him. The Russian-American Company remained here practically unmolested, until 1842, when they sold their fixtures to General Sutter, a Swiss American, for $30,000, and vacated California.

ATTEMPT TO SECURE THE SANDWICH ISLANDS.—In 1815 Baranov, instead of feeling chilled by the California unpleasantness, then in full headway, turned his ambitious eyes to the Sandwich islands, and actually despatched a vessel, or rather two of them, under the direction of Dr. Shaeffer, a German surgeon, who landed on Atooi, with one hundred picked Aleuts; but they were, at the lapse of a year, so discouraged by the open opposition of the Russian government to this scheme, that they abandoned the project.

RAPID DECAY OF THE RUSSIAN-AMERICAN COMPANY AFTER THE DEATH OF BARANOV.—In 1862, when the third extension of the twenty years' lease had expired, the affairs of the Russian-American Company were in a bad condition financially—deeply in debt, and the Imperial government was not disposed to renew the charter. This state of affairs gave rise, in 1864–'67, to negotiation with other trading organizations for the lease, which finally culminated in the purchase of Alaska by our government July, 1867. Such, in brief, was the Russian-American Company; it flourished under Baranov, but declined steadily to bankruptcy twenty years after his removal, when eighty years old, on account of extreme age, in 1818. In short, its great compeer, the Hudson Bay Company, was very much earlier initiated in the same manner June, 1670; then it finally organized with the Northwest Company under its present title, with renewed royal prerogatives and despotic sway over all British North America in 1821; it too has declined to a commercial cipher to-day, with its autocratic rights abolished long since; in 1857, I think; they were wholly rescinded; its subsidence was due, however, to the constant increasing white settlement of its territory.

33. METEOROLOGICAL ABSTRACT FOR THE MONTHS, FROM SEPTEMBER, 1872, TO APRIL, 1873, INCLUSIVE.

[Being interesting as the exhibit of an unusually severe winter. Made by Chas. P. Fish, United States Signal Service, St. Paul island.]

Character of observation.	Months of record.				Character of observation.	Months of record.			
	September.	October.	November.	December.		September.	October.	November.	December.
Mean of barometer, corrected	29.773	29.512	29.458	29.488	Mean relative humidity	85.6	83.9	86.6	87.8
Maximum of barometer, corrected	30.46	30.04	30.23	30.04	Maximum relative humidity	100	100	100	100
Minimum of barometer, corrected	28.87	28.51	28.62	28.05	Minimum relative humidity	56	65	60	70
Monthly range of barometer, corrected	1.59	1.53	1.61	1.99	Prevailing wind	N.	N.	S.	N.
Greatest daily range of barometer, corrected	0.97	0.97	0.87	0.80	Number of miles traveled by wind	9,138	11,872	14,539	16,644
Least daily range of barometer, corrected	0.03	0.04	0.06	0.03	Mean daily velocity of wind	304.6	383	484.6	530.5
Mean daily range of barometer, corrected	0.259	0.293	0.339	0.249	Mean hourly velocity of wind	12.7	16	20.2	22.1
Mean of exposed thermometer	44°.2	36°.0	34°.3	26°.6	Maximum hourly velocity of wind	33	42	74	53
Maximum of exposed thermometer	52°	45°	41°	37°	Proportion of cloudiness	92	84	78.9	84
Minimum of exposed thermometer	33°	22°	23°	4°	Amount of rain-fall, in inches	2.89	3.08	2.38	2.99
Monthly range of exposed thermometer	19°	23°	18°	33°	Greatest daily amount of rain-fall	0.85	0.58	0.31	0.42
Greatest daily range of exposed thermometer	11°	11°	12°	11°	Amount of melted hail and snow (included in rain-fall)	0.20	0.91	0.82	2.38
Least daily range of exposed thermometer	1°	1°	1°	1°	Number of days on which precipitation occurred	30	29	27	27
Mean of maxima of exposed thermometer	46°.8	38°.7	36°.2	29°.1	Number of days on which hail or snow fell	4	15	17	24
Mean of minima of exposed thermometer	41°.8	33°.3	31°.5	24°					
Mean daily range of exposed thermometer	5°.0	5°.4	4°.7	5°.1					

34. METEOROLOGICAL ABSTRACT, ETC.—Continued.

Character of observation.	Months of record.				Character of observation.	Months of record.			
	January.	February.	March.	April.		January.	February.	March.	April.
Mean of barometer, corrected	29.953	29.507	29.768	29.769	Mean relative humidity	85.7	86.2	81.8	84.29
Maximum of barometer, corrected	30.50	30.51	30.31	30.35	Maximum relative humidity	100	100	100	100
Minimum of barometer, corrected	29.32	28.26	29.05	29.00	Minimum relative humidity	53	49	46	63
Monthly range of barometer, corrected	1.18	2.25	1.26	1.35	Prevailing wind	ENE.	N.	N.	N.
Greatest daily range of barometer, corrected	0.58	0.95	0.66	0.73	Number of miles traveled by wind	17,903	16,646	14,512	18,007
Least daily range of barometer, corrected	0.03	0.06	0.05	0.03	Mean daily velocity of wind	577.5	594.3	468.1	620.2
Mean daily range of barometer, corrected	0.194	0.421	0.219	0.242	Mean hourly velocity of wind	24.1	24.8	19.5	25.84
Mean of exposed thermometer	15°.7	18°.6	12°.6	23°.9	Maximum hourly velocity of wind	43	82	88	53
Maximum of exposed thermometer	34°	34°	35°	35°	Proportion of cloudiness	62.8	74.9	68	73.6
Minimum of exposed thermometer	—11°	—12°	— 7°	3°	Amount of rain-fall, in inches	0.96	5.78	1.21	1.77
Monthly range of exposed thermometer	45°	46°	42°	32°	Greatest daily amount of rain-fall	0.39	1.07	0.38	0.50
Greatest daily range of exposed thermometer	22°	28°	20°	24°	Amount of melted hail and snow (included in rain-fall)	0.83	4.87	1.21	1.77
Least daily range of exposed thermometer	0°	3°	3°	3°					
Mean of maxima of exposed thermometer	18°.9	22°.6	17°.1	27°.9	Number of days on which precipitation occurred	21	27	27	26
Mean of minima of exposed thermometer	11°.9	15°.1	7°.4	19°.4					
Mean daily range of exposed thermometer	7°.0	7°.5	9°.7	8°.5	Number of days on which hail or snow fell	20	25	27	26

CLASSIFICATION OF THE WINDS.—The winds, here, may be classified under two heads: *Summer winds*—Blowing fresh during June, July, and August, principally from the west-northwest, varied with light airs from the northeast, and a gale or two from the southwest, lasting a day or so. *Winter winds*—Stirring fresh, to gales, throughout September to June, principally from the northwest to north-northeast; the "boorgas", or snow and sleet storms, coming invariably from that direction. One or two heavy southeasters occur every fall, as a rule; in October generally; the brief lulls between blasts during this season are occupied by light southerly airs.

The summer winds are always charged with fog; while the winter gales usually blow out clear, unless accompanied with sleety spiculæ or snow. In Siberia, Wrangell says that the southwest breezes are the coldest; the north-northwest ones are such here. The southerly airs are mild; but, I never felt any especial warmth when exposed to them.

CHARACTERISTICS OF BERING SEA ICE.—The descriptions which Wrangell, Demetri Laptev, and Hendenstrom have given of the behavior of the ice packs, between the Kolyma mouth and Cape Chelagskŏi, were duplicated, in all their details, by the floes which environed St. Paul during the winter of my residence there. On the 27th May, 1873, the ice fields around the island seemed as solid and unbroken to every point of the compass as they had for the five months preceding; and night settled over them in this shape; early in the morning of the following day, I arose, and, judge of my pleasant astonishment in viewing the open waters of Bering sea on every hand; the only suggestions left of its icy fetters were the numerous scattered cakes of thickest floes, which bobbed about at wide intervals, there was little or no strong wind attending this sudden dissolution. The decomposition of the ice had taken place so secretly that its final relegation to its original form was fairly accomplished almost instantly and simultaneously, and without warning to human eyes; the alternate layering of salt, in ocean water ice, accounts for this peculiar vanishing of sea floes.

THE FAILURE OF THE BAROMETER IN BERING SEA.—Pre-eminent among the many difficulties in the path of the mariner who may be cruising in Bering sea, is the fact that his barometer, which gives such timely and intelligent signals of warning, or of confidence, everywhere on the high seas of the earth, is, up here, by some reason or other, wholly impotent; and does nothing to aid, and everything to confuse and distress the sailor. Captain M. C. Erskine assured me of this; and his declaration is proof positive to my mind; he is undoubtedly, by the long experience of more than fourteen consecutive seasons' sailing in and out of Bering sea, 1867–1880 (this year's trip will make his fifteenth summer in those waters), the most thoroughly posted man, living, in regard to the currents, tides, winds and waves of the northwest coast between San Francisco and Bering straits.

With the exception of what Parry says in his narrative of his third voyage (1824), I do not find any specific mention made of this behavior of the barometer in the north; all of the arctic seamen, unquestionably, fully understand its utter worthlessness to them. Parry declares (Harper's *Family Library*, p. 66, vol. ii) "the indications of the barometer previous to and during this gale deserve to be noticed, because it is only about Cape Farewell that, in coming from the northward down Davis strait, this instrument begins to speak a language which has ever been intelligible to us as a weather-glass".

During the course of my cruise in Bering sea, July–September, 1874, the barometer was carefully noted, and Captain Baker of the "Reliance" satisfied himself that the less attention he gave to it the better, as far as the success of our voyage was concerned.

34. THE METHOD OF DRESSING THE FUR-SEAL SKIN.

HOW SEAL-SKINS ARE DRESSED.—As a matter of interest to so large a proportion of our people who delight in the possession of, or covet, a seal-skin sacque, I have taken the liberty of republishing the following letter in a previous brochure; and, as it answers now equally well, in reply to the query as to how the natural seal-skin is tanned, plucked, and dyed so as to pass the ordeal of fashionable dress-parade, I herewith reproduce it, stating simply, in doing so, that the writer is a very successful operator, and one whose work, when finished from his hands, is said to be always equal, and often superior, to the best English manufacture. It was written to me in answer to my question, by the senior member of the firm undersigned:

ALBANY, *October* 22, 1874.

SIR: The Alaska Commercial Company sold in London, December, 1873, about 60,000 skins taken from the islands leased by our government, of the catch of 1873. The remainder of the catch, about 40,000, were sold in March. This company have made the collection of seal from these islands much more valuable than they were before their lease, by the care used by them in curing the skins and taking them only when in season. We have worked this class of seal for several years—when they were owned by the Russian American Fur Company, and during the first year they were owned by our government.

When the skins are received by us in the salt, we wash off the salt, placing them upon a beam somewhat like a tanner's beam, removing the fat from the flesh side with a beaming-knife, care being required that no cuts or uneven places are made in the pelt. The skins are next washed in water and placed upon the beam with the fur up, and the grease and water removed by the knife. The skins are then dried by moderate heat, being tacked out on frames to keep them smooth. After being fully dried, they are soaked in water and thoroughly cleansed with soap and water. In some cases they can be unhaired without this drying process, and cleansed before drying. After the cleansing process they pass to the picker, who dries the fur by stove-heat, the pelt being kept moist. When the fur is dry he places the skin on a beam, and while it is warm he removes the main coat of hair with a dull shoe-knife, grasping the hair with his thumb and knife, the thumb being protected by a rubber cob. The hair must be pulled out, not broken. After a portion is removed the skin must be again warmed at the stove, the pelt being kept moist. When the outer hairs have been mostly removed, he uses a beaming-knife to work out the finer hairs (which are shorter), and the remaining coarser hairs. It will be seen that great care must be used, as the skin is in that soft state that too much pressure of the knife would take the fur also; indeed, bare spots are made. Carelessly-cured skins are sometimes worthless on this account. The skins are next dried, afterward dampened on the pelt side, and shaved to a fine, even surface. They are then stretched, worked, and dried; afterward softened in a fulling-mill, or by treading them with the bare feet in a hogshead, one head being removed and the cask placed nearly upright, into which the workman gets with a few skins and some fine, hardwood sawdust, to absorb the grease while he dances upon them to break them into leather. If the skins have been shaved thin, as required when finished, any defective spots or holes must now be mended, the skin smoothed and pasted with paper on the pelt side, or two pasted together to protect the pelt in dyeing. The usual process in the United States, is to leave the pelt sufficiently thick to protect them without pasting.

In dyeing, the liquid dye is put on with a brush, carefully covering the points of the standing fur. After lying folded, with the points touching each other, for some little time, the skins are hung up and dried. The dry dye is then removed, another coat applied, dried, and removed, and so on until the required shade is obtained. One or two of these coats of dye are put on much heavier and pressed down to the roots of the fur, making what is called the ground. From eight to twelve coats are required to produce a good color. The skins are then washed clean, the fur dried, the pelt moist. They are shaved down to the required thickness, dried, working them some while drying, then softened in a hogshead, and sometimes run in a revolving cylinder with fine sawdust to clean them. The English process does not have the washing after dyeing.

I should, perhaps, say that, with all the care used, many skins are greatly injured in the working. Quite a quantity of English dyed seal-skins were sold last season for $17, damaged in the dye.

The above is a general process, but we are obliged to vary for different skins. Those from various parts of the world require different treatment; and there is quite a difference in the skins from the seal-islands of our country—I sometimes think about as much as in the human race.

Yours, with respect,

GEO. C. TREADWELL & CO.

H. W. ELLIOTT, Esq.

FUR-SEAL SKINS ARE OF PERMANENT VALUE.—I have frequently been asked whether, in the light of probable caprices of fashion, the value of fur-seal skins would at times shrink to a mere nominal figure, or not. I think the history of this trade during the last twenty years, at least, and since the skins have been treated for market as above recited, that this record shows the fur-seal skin to be an article of intrinsic value, just as objects of luxurious gold and silver work, of precious stones, are, and always will be, no matter what the style may decree. That the demand made by the "mode" will sensibly appreciate their fixed high value is also very certain, as it does so to-day; but, withdraw it, the seal-skin is still a costly purchase to the wearer, and will ever be so.

35. BERING, *NOT* BEHRING.

BERING, HIMSELF, WROTE HIS NAME, "BERING".—I, myself, do not understand the reason why a false sound should be given to this navigator's name, when our alphabet is fully equal to its correct rendition. Here is the way the Russians write it, and Bering himself signed his name Беринъ = B e r i n g, (or B e r e n g), exactly in our own letter sounds. Yet this unwarranted corruption of the true equivalent of a celebrated name continues to be the common form of its expression by publication in England and this country. The Russians and the Danes sound the letter "r" in Bering precisely as we do; and the softened flattened sound of "r", indicated by *Behring*, is an error that should be avoided. It is originally a German corruption. Those Teutonic writers have made the Russian

nomenclature, as translated for us, by them, look strange and sound odd to hundreds of English minds who know better; but Forster, whom I quote below, was also a German, and hence his testimony to the correct orthography of the subject in question, is all the more valuable, especially so, since he says in the preface to his work there cited: "The numerous researches upon which, more especially in the ancient part, and that relative to the middle ages, I was obliged to enter, the multifarious departments of learning, from which I have derived some of the following notes and remarks, *the orthography of a proper name*, has frequently cost me hours, and sometimes whole days."

COGENT REASONS WHY IT IS "BERING".—Also in this relation, Professor Gill, of the Smithsonian Institution, informs me that "the name of the navigator, which has been conferred on the strait separating America and Asia, is unquestionably spelled BERING and not BEHRING. I submit in explanation my reasons: 1st. The navigator himself was born in Jutland, and a scion of a Danish family, whose members bore the name of Bering, and two representatives of which had the same Christian name, viz, (1) Vitus Bering, born 1617, died 1675, some time professor of poetry at Copenhagen, and (2) Vitus Bering, born 1682, died 1753, a priest of Ollerup and Kirkeby. The form *Behring*, so far as I can ascertain, is unknown in Denmark (see Nyerup's Dansk-Norsk Litteratur-Lexicon: v. i, pp. 56, 57, 1818). 2d. The form *Bering* is almost (but not quite) universally adopted in all non-English works, for example, Biographie Universelle (Michaud): v. 4, p. 261, 1811; also nouv. éd.: v. 4, p. 28, 1854; Nouvelle Biographie Générale (Hoefer): v. 5, p. 527, 1855; Allgemeine Encyclopädie der Wissenschaften und Künste (Ersch und Gruber): v. 9, p. 136, 1822; Neues Konversations-Lexicon (Meyer's): v. 3, p. 238, 1862; Deutsch-Amerikanisches Conversations-Lexicon (Schem): v. 2, p. 296, 1869, and numerous others. The exceptional cases are Pierer's Universal Lexicon, Grand Dictionnaire Universel du xix^{e} siècle, etc. In English dictionaries, the true form, *Bering*, is adopted in the Brief Biographical Dictionary, by Holes, 1865, and the Dictionary of Biographical Reference, by Phillips, 1871, and is gradually superseding the more familiar English form. An explanation of the reason of the origin of the name *Behring*, is found in the fact that it was originally derived from the Russian, without a knowledge of its primitive source, and was the supposed English phonetic expression of the Russian characters. Inasmuch, however, (1) as the original form of a name, without regard to its pronunciation, is universally adopted in our biographies and bibliographies, and (2) as the original form of the navigator's name was *Bering*, such is the correct one, and that which must ultimately supersede the other. It need only be added that Bering himself, and the Russians universally, (?) adopt that form when writing in English characters, and that the Russian letter ('в') in his name, represented by 'eh,' is especially ordained by the Russians to be rendered by the Latin character 'e,' in accordance with the pronunciation of the Latin and continental races generally."

In addition to this clear statement by Professor Gill, I desire to add the following: John Reinhold Forster, I. U. D., who sailed around the world with Captain Cook—a man that universally commanded respect in his day as a scholar and a high-minded gentleman—in his *Voyages and Discoveries in the North*, London, 1783, pp. 401–402, writes: "Nevertheless, it would be still more proper to make this strait a kind of monument to the very deserving and truly great navigator, *Veit Bering*, by naming it, after him, *Bering straits*."

THE COMMON ERROR OF "OFF" FOR "OV".—Furthermore, in this connection, it will be noticed that I do not spell the common Russian terminative "овъ" as "-off"; these letters "овъ" in the Russian, are sounded by their makers exactly as we would "*ov*" in our own alphabet; for instance, take the name "*Baranov*," or "Барановъ" in the Russian; the common English and German spelling in our language is "*Baranoff*"; but, when these same writers come to "Барановичъ", instead of making it "*Baranofitch*", according to their first erroneous rule, they spell it correctly, "*Baranovitch*." In the same way they murder "*Pribylov*"; but did they chance to write it in the possessive, it would appear correctly as "*Pribylova*", and not "*Pribyloffa*". The Russians have our letter "*f*", as "ѳ" in their alphabet; and they use it freely when they want to express that same sound of "*f*" in our tongue; for instance, in "*Timothy*", they always say "*Timofay*" (Тимофѣй): "*Officer*," is "*Offitsar*," etc.

THE UNWARRANTED "W" FOR "V".—This unsettled state of English orthography, as far as it relates to the introduction and correct rendition of Russian nomenclature, produces much embarrassment and annoyance to any writer who may seek for a fixed rule; not only do no two authors agree, but these authorities themselves are guilty of the inconsistencies which I have pointed out above. Thus, these German translations of the Russian have given us "Moscow", when there is no sound of "W" in the Russian language or suggestion of it in that facile and extensive alphabet of nearly forty letters. In the case of Moscow, I presume we must be guided by the authority and example of Gibbon, who declares that "some words, notoriously corrupt, are fixed, and as it were, naturalized in the vulgar tongue. The prophet *Mohammed* can no longer be stripped of the famous, though improper, appellation of *Mahomet*; the well-known cities of *Aleppo*, *Damascus*, and *Cairo*, would almost be lost in the strange descriptions of *Haleb*, *Damashk*, and *Al Cahira*."

HIGH TIME TO CORRECT SUCH BLUNDERS.—But, in all kindness, I submit that the name of Bering has not been so firmly travestied as has that of the Arabic chief, and ought not to be passed down misspelled on the map of the great sea and straits which perpetuate and commemorate his being. And it is high time such numberless outrages as "Wolga", for "Volga"; "Kiew", for "Kiev"; "Azow", for "Azov"; "Pribiloff", for "Pribylov"; "Werst", for "Verst", be corrected in all future printing of Russian nomenclature.

36. THE LAW PROTECTING THE SEAL-ISLANDS.

AN ACT to prevent the extermination of fur-bearing animals in Alaska.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That it shall be unlawful to kill any fur-seal upon the islands of St. Paul and St. George, or in the waters adjacent thereto, except during the months of June, July, September, and October, in each year; and it shall be unlawful to kill such seals at any time by the use of fire-arms, or use of other means tending to drive the seals away from said islands: *Provided*, That the natives of said islands shall have the privilege of killing such young seals as may be necessary for their own food and clothing during other months, and also such old seals as may be required for their own clothing and for the manufacture of boats for their own use, which killing shall be limited and controlled by such regulations as shall be prescribed by the Secretary of the Treasury.

SEC. 2. *And be it further enacted*, That it shall be unlawful to kill any female seal, or any seal less than one year old, at any season of the year, except as above provided; and it shall also be unlawful to kill any seal in the waters adjacent to said islands, or on the beaches, cliffs, or rocks where they haul up from the sea to remain; and any person who shall violate either of the provisions of this or the first section of this act, shall be punished on conviction thereof, for each offense, by a fine of not less than two hundred dollars nor more than one thousand dollars, or by imprisonment not exceeding six months, or by both such fine and imprisonment, at the discretion of the court having jurisdiction and taking cognizance of the offenses; and all vessels, their tackle, apparel, and furniture, whose crew shall be found engaged in the violation of any of the provisions of this act, shall be forfeited to the United States.

SEC. 3. *And be it further enacted*, That for the period of twenty years from and after the passage of this act, the number of fur-seals which may be killed for their skins upon the island of St. Paul is hereby limited and restricted to seventy-five thousand per annum; and the number of fur-seals which may be killed for their skins upon the island of St. George, is hereby limited and restricted to twenty-five thousand per annum: *Provided*, That the Secretary of the Treasury may restrict and limit the right of killing, if it shall become necessary for the preservation of such seals, with such proportionate reduction of the rents reserved to the government as shall be right and proper; and if any person shall knowingly violate either of the provisions of this section, he shall, upon due conviction thereof, be punished in the same way as is provided herein for a violation of the provisions of the first and second sections of this act.

SEC. 4. *And be it further enacted*, That immediately after the passage of this act, the Secretary of the Treasury shall lease, for the rental mentioned in section 6 of this act, to proper and responsible parties, to the best advantage of the United States, having due regard to the interests of the government, the native inhabitants, the parties heretofore engaged in the trade, and the protection of the seal-fisheries, for a term of twenty years from the 1st day of May, 1870, the right to engage in the business of taking fur-seals on the islands of St. Paul and St. George, and to send a vessel or vessels to said islands for the skins of such seals, giving to the lessee or lessees of said islands a lease duly executed, in duplicate, not transferable, and taking from the lessee or lessees of said islands a bond, with sufficient sureties, in a sum not less than $500,000, conditioned for the faithful observance of all the laws and requirements of Congress, and of the regulations of the Secretary of the Treasury touching the subject-matter of taking fur-seals and disposing of the same, and for the payment of all taxes and dues accruing to the United States connected therewith. And in making said lease the Secretary of the Treasury shall have due regard to the preservation of the seal-fur trade of said islands, and the comfort, maintenance, and education of the natives thereof. The said lessees shall furnish to the several masters of vessels employed by them certified copies of the lease held by them, respectively, which shall be presented to the government revenue-officer for the time being, who may be in charge at the said islands, as the authority of the party for landing and taking skins.

SEC. 5. *And be it further enacted*, That at the expiration of said term of twenty years, or on surrender or forfeiture of any lease, other leases may be made in manner as aforesaid for other terms of twenty years; but no persons other than American citizens shall be permitted, by lease or otherwise, to occupy said islands, or either of them, for the purpose of taking the skins of fur-seals therefrom, nor shall any foreign vessel be engaged in taking such skins; and the Secretary of the Treasury shall vacate and declare any lease forfeited, if the same be held or operated for the use, benefit, or advantage, directly or indirectly, of any person or persons other than American citizens. Every lease shall contain a covenant on the part of the lessee that he will not keep, sell, furnish, give, or dispose of any distilled spirits or spirituous liquors on either of said islands to any of the natives thereof, such person not being a physician and furnishing the same for use as medicine; and any person who shall kill any fur-seal on either of said islands, or in the waters adjacent thereto (excepting natives as provided by this act), without authority of the lessees thereof, and any person who shall molest, disturb, or interfere with said lessees, or either of them, or their agents or employés, in the lawful prosecution of their business, under the provisions of this act, shall be deemed guilty of a misdemeanor, and shall for each offense, on conviction thereof, be punished in the same way and by like penalties as prescribed in the second section of this act; and all vessels, their tackle, apparel, appurtenances, and cargo, whose crews shall be found engaged in any violation of either of the provisions of this section, shall be

forfeited to the United States; and if any person or company, under any lease, herein authorized, shall knowingly kill, or permit to be killed, any number of seals exceeding the number for each island in this act prescribed, such person or company shall, in addition to the penalties and forfeitures aforesaid, also forfeit the whole number of the skins of seals killed in that year, or, in case the same have been disposed of, then said person or company shall forfeit the value of the same. And it shall be the duty of any revenue officer, officially acting as such on either of said islands, to seize and destroy any distilled spirits or spirituous liquors found thereon; *Provided*, That such officer shall make detailed report of his doings to the collector of the port.

SEC. 6. *And be it further enacted*, That the annual rental to be reserved by said lease, shall be not less than fifty thousand dollars per annum, to be secured by deposit of United States bonds to that amount, and in addition thereto a revenue tax or duty of two dollars is hereby laid upon each fur-seal skin taken and shipped from said islands during the continuance of such lease, to be paid into the Treasury of the United States; and the Secretary of the Treasury is hereby empowered and authorized to make all needful rules and regulations for the collection and payment of the same; and to secure the comfort, maintenance, education, and protection of the natives of said islands, and also for carrying into full effect all the provisions of this act; *Provided*, That the Secretary of the Treasury may terminate any lease given to any person, company, or corporation, on full and satisfactory proof of the violation of any of the provisions of this act, or rules and regulations established by him.

SEC. 7. *And be it further enacted*, That the provisions of the seventh and eighth sections of an act entitled "An act to extend the laws of the United States relating to customs, commerce, and navigation over the territory ceded to the United States by Russia, to establish a collection district therein, and for other purposes", approved July 27, 1868, shall be deemed to apply to this act; and all prosecution for offenses committed against the provisions of this act, and all other proceedings had because of the violations of the provisions of this act, and which are authorized by said act above mentioned, shall be in accordance with the provisions thereof, and all acts and parts of acts inconsistent with the provisions of this act are hereby repealed.

SEC. 8. *And be it further enacted*, That the Congress may at any time hereafter alter, amend, or repeal this act.

Approved July 1, 1870.

AMENDED, MARCH 24, 1874.—*Be it enacted, etc.*, That the act entitled "An act to prevent the extermination of fur-bearing animals in Alaska", approved July first, eighteen hundred and seventy, is hereby amended so as to authorize the Secretary of the Treasury, and he is hereby authorized, to designate the months in which the fur-seals may be taken for their skins on the islands of St. Paul and St. George, in Alaska, and in the waters adjacent thereto, and the number to be taken on or about each island respectively.

37. THE ORGANIZATION AND REGULATIONS OF THE ALASKA COMMERCIAL COMPANY.

BY-LAWS OF THE ALASKA COMMERCIAL COMPANY, SAN FRANCISCO, CALIFORNIA.

I. The corporate name of this company is the Alaska Commercial Company, and its affairs are under the control of five trustees, who shall hereafter be chosen by the stockholders of the company on the second Wednesday of June in each year, and who shall hold office until their successors are elected. The annual meetings of the stockholders shall be held at the office of the company. At all elections of trustees by the stockholders, each stockholder shall be entitled to one vote for every share of stock held by him on the books of the company. Stockholders may vote by proxy. All proxies shall be signed by the party owning the stock represented.

II. The principal place of business of the company is San Francisco, California.

III. The regular meetings of the board of trustees will be held at the office of the company on the first Wednesday in each month, at 12 o'clock m., and no notice of such meeting to any of the trustees shall be requisite. Other meetings of the board of trustees may be held upon the call of the president, by notice, signed by him, of the time and place of meeting, personally served on each trustee residing within this state, or published in a newspaper of general circulation in San Francisco for ten days successively next preceding the day of such meeting. Special meetings may be held upon notice, signed by three trustees, stating the time and place of meeting, and the purpose for which the meeting is called, having been duly served on each trustee, or published in a newspaper of general circulation in San Francisco for ten days successively next preceding the day of meeting, and no business other than that specified in the notice shall be transacted at such special meeting. At all meetings of the board any three of the trustees being present shall constitute a quorum for the transaction of the business of the company. Adjourned meetings may be held in pursuance of a resolution of the board adopted at any regular or general meeting of the board. Any three trustees elected at any annual meeting of the stockholders of the company, and being present at the close of such stockholders' meeting may, on the same day, without notice to any of the trustees, meet and organize the board by the election of officers, and may transact such other business as may come before the board at such meeting.

IV. The officers of the company shall consist of a president, a vice-president, and a secretary, who shall be chosen by the board of trustees at their first meeting after the annual election of trustees; such officers to hold office one year, or until their successors are elected.

V. The president, or in his absence the vice-president, shall preside at the meetings of the board. In case neither is present, the board may appoint a president *pro tempore*.

VI. All vacancies in the board may be filled by the board at the next meeting after the existence of such vacancy, and it shall require the affirmative vote of three trustees to elect. In case of any vacancy occurring among the officers or agents of the company, the same may be filled at any meeting of the board.

VII. All certificates of the capital stock of the company shall be signed by the president and secretary, attested by the corporate seal of the company, and can be issued to the parties entitled thereto or their authorized agent. All transfers of stock shall be made on the books of the company by the secretary, upon surrender of the original certificate or certificates, properly indorsed by the party in whose favor the same was issued. No stock shall be transferred to any person not a stockholder of the company at the time of such transfer, unless the same shall have been offered for sale to the company, or stockholders of the company, and the purchase at the fair cash or market value refused, except by authority of a resolution of the board of trustees permitting such transfer.

VIII. The corporate seal of the company consists of a die of the following words: "Alaska Commercial Company, San Francisco, California."

IX. The corporate seal, and all property, securities, interests and business of the company, shall be under the control and general management of the president, subject to the direction of the board of trustees. The funds of the company shall be deposited (from time to time as they are received) to the credit of the company, with a bank doing business in San Francisco, to be designated by the president, and the said funds can be drawn from such bank only by proper checks or drafts, signed by the president or vice-president of the company. The books of the company shall be kept by the secretary, who shall also keep a correct record of all the proceedings of the board of trustees had at their meetings, and perform such other duties as the board of trustees may require.

X. The pay and salaries of all officers of the company shall be determined, from time to time, by the board of trustees.

XI. The president of the company shall have power to appoint and employ such general business agents, factors, attorneys, clerks, and other employés as he may deem proper and requisite for conducting the business and affairs of the company; and he shall fix the pay, commissions, or salaries of all such agents, factors, attorneys, clerks, and other employés, from time to time, as circumstances shall require.

XII. All transfers of the capital stock of this company, made to persons not citizens of the United States, or made for the use or benefit of any citizen or citizens of any foreign government, are absolutely void.

XIII. Dividends from the net profits of the company may be declared and paid by order of the board of trustees, in accordance with law.

XIV. These by-laws may be altered or amended by the board of trustees in the manner prescribed by law.

REGULATIONS FOR CONDUCT OF AFFAIRS ON THE SEAL-ISLANDS.

OFFICE ALASKA COMMERCIAL COMPANY,
SAN FRANCISCO, *January*, 1872.

The following regulations are prescribed for the guidance of all concerned:

1. The general management of the company's affairs on the islands of St. Paul and St. George is intrusted to one general agent, whose lawful orders and directions must be implicitly obeyed by all subordinate agents and employés.

*2. Seals can only be taken on the islands during the months of June, July, September, and October in each year, except those killed by the native inhabitants, for food and clothing, under regulations prescribed by the Secretary of the Treasury. Female seals and seals less than one year old will not be killed at any time, and the killing of seals in the waters surrounding the islands, or on or about the rookeries, beaches, cliffs, or rocks, where they haul up from the sea to remain, or by the use of fire-arms, or any other means tending to drive the seals away from the islands, is expressly forbidden.

3. The use of fire-arms on the islands, during the period from the first arrival of seals in the spring season until they disappear from the islands in autumn, is prohibited.

4. No dogs will be permitted on the islands.

5. No person will be permitted to kill seals for their skins on the islands, except under the supervision and authority of the agents of the company.

6. No vessels other than those employed by the company, or vessels of the United States, will be permitted to touch at the islands, or to land any persons or merchandise thereon, except in cases of shipwreck or vessels in distress.

*7. The number of seals which may be annually killed for their skins on St. Paul island is limited to 75,000, and the number which may be so killed on St. George island is limited to 25,000.

* Sections 2 and 7 of the above regulations were based upon the law of July 1, 1870; but since then Congress has given the Secretary of the Treasury the power to fix the ratio for each island upon a more intelligent understanding of the subject, and also to extend the time for taking seal-skins, from the 1st of June up to the 15th of August.—H. W. E.

8. No persons other than American citizens, or the Aleutian inhabitants of said islands, will be employed by the company on the islands in any capacity.

9. The Aleutian people living on the islands will be employed by the company in taking seals for their skins, and they will be paid for the labor of taking each skin and delivering the same at the salt-house forty cents, coin, until otherwise ordered by the Secretary of the Treasury. For other labor performed for the company, proper and remunerative wages will be paid, the amount to be agreed upon between the agents of the company and the persons employed. The working-parties will be under the immediate control of their own chiefs, and no compulsory means will ever be used to induce the people to labor. All shall be free to labor or not, as they may choose. The agents of the company will make selection of the seals to be killed, and are authorized to use all proper means to prevent the cutting of skins.

10. All provisions and merchandise required by the inhabitants for legitimate use will be furnished them from the company's stores, at prices not higher than ordinary retail prices at San Francisco, and in no case at prices above 25 per cent. advance on wholesale or invoice prices in San Francisco.

11. The necessary supplies of fuel, oil, and salmon will be furnished the people *gratis*.

12. All widows and orphan children on the islands will be supported by the company.

13. The landing or manufacture on the islands of spirituous or intoxicating liquors or wines will, under no circumstances, be permitted by the company, and the preparation and use of fermented liquors by the inhabitants must be discouraged in every legitimate manner.

14. Free transportation and subsistence on the company's vessels will be furnished all people who at any time desire to remove from the islands to any place in the Aleutian group of islands.

15. Free schools will be maintained by the company eight months in each year, four hours per day, Sundays and holidays excepted, and agents and teachers will endeavor to secure the attendance of all. The company will furnish the necessary books, stationery, and other appliances for the use of the schools, without cost to the people.

16. The physicians of the company are required to faithfully attend upon the sick, and both medical attendance and medicines shall be free to all persons on the islands; and the acceptance of gratuities from the people for such services is forbidden.

17. The dwelling-houses now being erected by the company will be occupied by the Aleutian families free of rent or other charges.

18. No interference on the part of the agents or employés of the company in the local government of the people on the islands, or in their social or domestic relations, or in their religious rites or ceremonies, will be countenanced or tolerated.

19. It is strictly enjoined upon all agents and employés of the company to at all times treat the inhabitants of the islands with the utmost kindness, and endeavor to preserve amicable relations with them. Force is never to be used against them, except in defense of life, or to prevent the wanton destruction of valuable property. The agents and employés of the company are expected to instruct the native people in household economy, and, by precept and example, illustrate to them the principles and benefits of a higher civilization.

20. Faithful and strict compliance with all the provisions and obligations contained in the act of Congress entitled "An act to prevent the extermination of fur-bearing animals in Alaska", approved July 1, 1870, and the obligations contained in the lease to the company executed in pursuance of said act, and the regulations of the Secretary of the Treasury, prescribed under authority of said act, is especially enjoined upon all agents and employés of the company. The authority of the special agents of the Treasury appointed to reside upon the islands must be respected, whenever lawfully exercised. The interest of the company in the management of the seal-fisheries being identical in character with that of the United States, there can be no conflict between the agents of the company and the agents of the government, if all concerned faithfully perform their several duties and comply with the laws and regulations.

21. The general agent of the company will cause to be kept books of record on each island, in which shall be recorded the names and ages of all the inhabitants of the islands, and, from time to time, all births, marriages, and deaths which may occur on the islands, stating, in cases of death, the causes of the same. A full transcript of these records will be annually forwarded to the home office at San Francisco.

22. Copies of these regulations will be kept constantly posted in conspicuous places on both islands, and any willful violation of the same by the agents or employés of the company will be followed by the summary removal of the offending party.

JOHN F. MILLER,
President Alaska Commercial Company.

General Miller, in January, 1881, was elected, by the legislature of California, to the Senate of the United States. He is succeeded as president of the Alaska Commercial Company by Mr. Lewis Gerstle, who is one of the original stockholders, and who has always been prominently identified with the business. The affairs of the company are now principally managed by Messrs. Gerstle, Sloss, Niebaum, and Neumann, on the Pacific coast; by Mr. Hutchinson, at Washington; and Sir Curtis Lampson in London.

38. COMMENTS UPON THE LEGISLATION OF CONGRESS.

RATIO OF CATCH AT FIRST INCORRECTLY APPORTIONED.—The original text of the existing law for the protection of the seal-islands, provides that the 100,000 seals which may be annually taken from them shall be proportioned by killing 75,000 on St. Paul and 25,000 on St. George. This ratio was based evidently upon the foregoing table of Veniaminov, which, if accurate, would clearly show that fully one-third as many seals repaired to the smaller island as to the larger one, and until I made my surveys, 1872–'74, it was so considered by all parties interested. The fact, however, which I soon discovered, is that St. George receives only one-eighteenth of the whole aggregate of fur-seal visitation peculiar to the Pribylov islands, St. Paul entertaining the other seventeen parts.

REASON FOR AMENDMENT OF 1874.—This amazing difference, in the light of prior knowledge and understanding, caused me, on returning to Washington in October, 1873, to lay the matter before the Treasury Department, and ask that the law be so modified that, in the event of abnormally warm killing-seasons, a smaller number might be taken from St. George, with a corresponding increase at St. Paul; for, unless this was done, it might become at any season a matter of great hardship to secure 25,000 killable seals on St. George, in the short period allotted by the law of July 1, 1870. The Treasury Department, while fully concurring in my representations, seemed to doubt its power to do so; then, with its sanction, I carried the question before Congress, January, 1874, and secured from that body an amendment of the act of July 1, 1870, above quoted in full (act, etc., approved March 24, 1874), which gives the Secretary of the Treasury full discretion in the matter, and fixes the hitherto inflexible ratio of killing on each island upon a sliding scale, as it were, for adjustment from season to season, upon a more intelligent understanding of the subject; and, also, this amendatory act grants an extension of the legal limit of killing, by giving the Secretary of the Treasury the power to fix it annually.

LAW WORKS WELL.—As the law is now amended, the killing on the two islands can be sensibly adjusted each season, by the relative number of seals on the two islands, which will vary so markedly on St. George according as it may be abnormally dry and warm when the period for driving the "holluschickie" is at hand.*

SPECIAL AGENTS OF THE TREASURY DEPARTMENT.—Prior to March, 1872, the supervision of the Treasury Department over its interests on the Pribylov islands was directed by the detail of special agents from the Secretary, who paid them out of a contingent fund of $50,000, which Congress voted in 1868 for the "collection of customs" in Alaska; this appropriation running out, the secretary drew the following bill, which Congress adopted, and it was approved March 5, 1872:

SECTION I. *Be it enacted, etc.*, That the Secretary of the Treasury be, and he is hereby, authorized to appoint one agent and three assistant agents, who shall be charged with the management of the seal-fisheries in Alaska, and the performance of such other duties as may be assigned to them by the Secretary of the Treasury; and the said agent shall receive the sum of ten dollars *per diem;* one assistant agent the sum of eight dollars *per diem;* and two assistant agents the sum of six dollars each *per diem* while so employed; and they shall also be allowed their necessary traveling expenses in going to and returning from Alaska, such expenses not to exceed the sum of three hundred dollars in any one year.

SEC. II. *And be it further enacted,* That the Secretary of the Treasury be, and is hereby, authorized to erect a dwelling-house upon each of the islands of St. Paul and St. George, for the use of said agents, the cost of both not to exceed the sum of six thousand dollars.

SEC. III. *And be it further enacted,* That the said agents be, and they are hereby, empowered to administer oaths in all cases relating to the service of the United States, and to take testimony in Alaska for the use of the government in any manner concerning the public revenues.

Under this law the present force of treasury officers is creditably maintained on the Pribylov islands. Living there, as they do, in perfect isolation, so far from headquarters, it is necessary that, to insure the personal ability of the officers to be out on the killing-grounds in the sealing-season, two agents at least should be detailed upon each island, as they are; should one fall sick, then the other is on hand. The work every year of taking the seals, like the moving of the tides, cannot and will not wait for any man; it is literally "now or never!" with its conduct.

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* Upon my urgent and persistent representations, the law directing, and appropriating for, the maintenance of a revenue cutter in Alaska waters, for the protection of the seal-islands and sea-otter hunting-grounds, was inserted in the sundry civil budget for 1877; and, in May of that year, the late Capt. George W. Bailey, in the United States revenue marine cutter "Richard Rush", sailed on that errand from San Francisco. This special service has been continued ever since, and now will remain a regularly sustained action on the part of the department, I trust. The excellent record and efficiency of the supervision rendered by the revenue marine in Alaska has been so well maintained and is so apparent, that I do not see how it can be suffered to fall. It is the only effective arm of the United States government in that region, or that has ever been so. All travel in that country is essentially by water; nine-tenths of its people live by the seaside.

The fur-seals of Alaska, collectively and individually, are the property of the general government, and for their special and sole protection the extra legislation of July, 1870, was designedly enacted. Every fur-seal playing in the waters of Bering sea around about the Pribylov islands, no matter if found so doing one hundred miles away from those rookeries, belongs there, has been begotten and born thereon, and is the animal that the explicit shield of the law protects; no legal sophism or quibble can cloud the whole truth of my statement. Construe the law otherwise, then a marine license of hunting beyond a marine league (3 miles) from the shores of the Pribylov islands, would soon raise up such a multitudinous fleet, that its cruising could not fail, in a few short years, in so harassing and irritating the breeding-seals as to cause their withdrawal from the Alaskan rookeries, and probable retreat to those of Russia—a source of undoubted Muscovitic delight and emolument, and of corresponding shame and loss to us.

The matter is, however, now thoroughly appreciated and understood at the Treasury Department, and has been during the past four years, as the seal pirates have discovered to their chagrin and discomfiture.

39. PARAGRAPHS OF REFERENCE RELATIVE TO SUBJECTS DISCUSSED IN THE PRECEDING MEMOIR, AND REFERRED TO AS **NOTE 39.**

A. PREVIOUS PUBLICATIONS OF THE WRITER [Section I].—I allude, at the outset, to the fact that a brief digest of my surveys had been published by the government in 1873–'74; it is entitled *Condition of Affairs in Alaska:* 8°, 1874. This report was principally given up to the state of the fur-trade over all Alaska, the people and resources thereof; it also contains the substance of a still briefer report of mine made upon the Pribylov islands in September, 1873, and was printed by the Treasury Department during my absence in Alaska. Owing to causes of which I have necessarily no personal knowledge, only 75 copies of this report were struck off; it was illustrated by 50 quarto plates photographed from my drawings and paintings.

B. ST. FELIX MUST NOT BE CONFOUNDED WITH MASAFUERA [Section 2].—The overshadowing number of fur-seals found on Masafuera and Juan Fernandez islands, just to the southward of this island, has caused a great deal of confusion as to the existence, or not, of *Arctocephalus* on this island and Ambrosia islet, in the old records and statements of Antarctic fur-sealers. It has, however, never been a very prominent rookery, but it has been one, nevertheless, and hence I give its name.

A fur-seal skin was taken from either the straits of Le Maire or Juan Fernandez as early as 1686, and presented to the Museum of the Royal Society in London; here it was first noticed as new by Dr. Grew, in 1694; but the name of the donor and the locality being unknown, the matter was allowed to drop by naturalists, and Grew's descriptions were laid aside by them as obscure and apocryphal; indeed, even as late as 1823, Baron Cuvier said of the Grew diagnosis, "Que faire de cette phoque—Que faire de cette otarie?" (*Dict. Class. d'Hist. Nat.*, tome xiii.)

I say that this specimen was taken from the above localities in all probability; because, unless it came from the Falkland islands, there were no other fur-seal grounds known to navigators at so early a date. Spanish and English buccaneers were, however, familiar with Juan Fernandez and Masafuera as soon as 1574–'86, or a full century prior to the receipt of the Grew specimen. These sea pirates, however, prided themselves over their swords alone; so we have no record of what they really knew or did. Nevertheless, some of them, evidently, employed a leisure hour or day in securing and transmitting the skin above referred to. In summing up, therefore, Henry Brewer, in 1646, at Staten land, first noticed the southern fur-seal. William Dampier, in 1683, first called specific attention to it as a fur-seal, and Dr. Grew, as above stated, first described it formally as a new seal to natural science. So much is due to the true literature of the Antarctic fur-seal.

C. PRIBYLOV'S DISCOVERY OF THE ISLANDS [Section 3].—"Anglieskie Boökta," or English bay, so-called by the natives because in 1849 a large English whale (?) ship was stranded on the shoals of that reach of the coast, and the wreck driven ashore there.

D. LAND AND SCENERY [Section 4].—This village lagoon has been filling up very perceptibly since 1868, when Hutchinson and Morgan then were able to sail in a small sloop, drawing six feet of water, up to its head. To-day such a vessel could not come nearer than half a mile to their anchorage of 1868. The principal shoaling takes place in a direct line here between Tolstoi Mees and the Village Hill, where a rocky reef seems to be slowly rising, pushed up by ice-fields. The sloop yacht "Jabez Howe", which was wrecked in 1873 on Akootan, is probably the last sea-going vessel that has or ever will gain an entrance to the village lagoon, St. Paul island; or swing at anchor in the cove.

E. ST. PAUL [Section 4].—The physical difficulties of pedestrianism here recall vividly to my mind the recent death of Mr. Edward Gill, a brother of the distinguished naturalist, Professor Gill, of the Smithsonian Institution. Late in October, 1876, this young man, in company with several of the natives and two agents of the Alaska Commercial Company, started out one bright morning for a walk, intending to go to Northeast point, then to return by Nahsayvernia to English bay, and home to the village in the evening; they had journeyed on this route as far as Maroonitch, at the north shore, when a storm of wind and sleet arose which blew directly in their faces as they came across the island to English bay. Gill sank several times from exhaustion, caused by the severe exercise of walking in the sphagnum on Boga Slov and of jumping over the tussocks near the bay. Finally, at the head of the lagoon, and in sight of the village lights, he dropped into the long grass, utterly prostrated; his companions, too weak to carry him farther, struggled on, and when the relief party found him he was warm, but life had departed. He was in perfect health and condition at the starting; but the chill fury of the icy gale had compassed his death.

F. RESIDENT NATIVES OF ST. PAUL, JULY 1, 1870, TAKEN FROM PHILIP VOLKOV'S LISTS, AUGUST 8, 1873. [Section 5.]

[The names in italics were either dead or absent from the island at the date of copy, August 8, 1873.]

1. *Philip Keemachneek.*
2. *Effroseenia, his wife.*
3. *Ivan, his son.*
4. *Danelo, his son.*
5. Vasseele Seedulee.
6. *Marcena, his wife.*
7. *Alexander, his son.*
8. Sylvester, his son.
9. *Eefeem Anoolanak.*
10. *Matroona, his wife.*
11. *Simeon, adopted son.*
12. *Marka Avcelyah.*
13. *Feelecchat, his wife.*
14. Peter Peeshenkov.
15. Matroona, his wife.

16. Ivan Eemanov.
17. Anna, his wife.
18. Yeagor, his son.
19. Loobov, his step-daughter.
20. Maxseem, his step-son.
21. Maria, his niece.
22. Nickolai Krukov.
23. Peter Krukov.
24. Agrafeena, his wife.
25. Ivan Korchootin.
26. Ooleeana, his wife.
27. Yahkov Korchootin.
28. Lookahria, his sister.
29. *Natalia Makooleena.*
30. Maria Paranchina.
31. Keesar Shabbylean.
32. Agrafeena, his wife.
33. Neekon, his son.
34. *Ripsimia Plottnikova.*
35. Avdotia, her daughter.
36. Prokoopee Meeseekin.
37. Eveduxsia, his wife.
38. Avdotia Meeseekina, his step-mother.
39. Anna, daughter of Meeseekin.
40. Deemeetree Veatkin.
41. Evelampia Veatkin,
42. Balakshin (Benedict).
43. Matroona, his wife.
44. Meexhae, his son.
45. Balakshin, second (Benedict).
46. Stepan Krukov.
47. Natalie, his wife.
48. Avdokia Seeribneekova (widow).
49. Timofay, her son.
50. Olga, her daughter.
51. Paraskeevee, her daughter.
52. Akooleena, her daughter.
53. Michael Barrhov.
54. Malania, his wife.
55. Agnes, his daughter.
56. Daniel, his nephew.
57. Avdotia, Schepeteenah (widow).
58. Tahreentee, her son.
59. Elasie, her son.
60. Hee-une-iah, her daughter.
61. Kerick Booterin, first chief.
62. Seeg-lee-teekiah, his wife.
63. *Patalamon, his son.*
64. Kerick, his son.
65. Salomayee, his daughter.
66. Ooleeta, his daughter.
67. George Booterin, his son.
68. Carp Booterin.
69. Lookariah Booterin.
70. Alexander Pancov.
71. Porfeerie, his son.
72. Avdotia, his step-daughter.
73. Paraskeevie, his step-daughter.
74. Yakov Sootyahgin.
75. Eeroadea, his wife.
76. Feedosayee Saydeek.
77. Anesia, his wife.
78. Anna, his daughter.
79. Feoktista, his godmother.
80. Dayneese Saydeek.
81. *Baiz yahzeekov (Evlampia).*
82. *Anna, his wife.*
83. *Maria, his daughter.*
84. Maroon Nakock.
85. Paraskeevie, his wife.
86. Zachar, his step-son.
87. ———, his nephew.
88. Paraskeevie, niece.
89. Natalia Habaroova.
90. Pavel Habarov, her son.
91. *Paul Shies-neekov (priest).*
92. *Meeh-ah-elo, his son.*
93. Meeloveedova, Alexsandra (widow).
94. Simeon, her son.
95. *Alexsandra, her daughter.*
96. Antone, her son.
97. Marcia, her daughter.
98. Kerick Artamanov.
99. Olga, his wife.
100. Melania, his daughter.
101. Vasseleesee, his daughter.
102. Kah-sayn-yah, his daughter.
103. Gearman Artamanov.
104. Anna Tarantayvah (widow).
105. Anna, her daughter.
106. Stephen Bayloglazov.
107. Yealeena, his wife.
108. *Sayrgee, his son.*
109. Anna, his daughter.
110. Paraskeevie, his adopted girl.
111. Ermolie Cushing.
112. Faokla, his wife.
113. Faokla, his daughter.
114. Oolyahnah, his daughter.
115. Aggie Cushing, his son.
116. Antone Sootyahgen.
117. Oolyahnah, his wife.
118. Meetrofan, his son.
119. *Meehaie, his son.*
120. Yahkov Mandrigan.
121. Afanashia, his wife.
122. *Lookayleean, his son.*
123. Maria, his daughter.
124. Oseep Pahomov.
125. Varvarah, his wife.
126. Maria Seedova (widow).
127. Ahkakee, her son.
128. ———, her daughter.
129. ———, her daughter.
130. ———, her daughter.
131. ———, her daughter.
132. Alexsayee Neederazov.
133. Akooleena, his wife.
134. Christeena, his daughter.
135. Agrafeena, his daughter.
136. Keer Saydeek.
137. Yealeena, his wife.
138. *Maria, his daughter.*
139. Ivan Mandrigan.
140. Tatahyahn, his wife.
141. Vasseelee, his son.
142. Marfa, his daughter.
143. Feelat Teetov.
144. Peter, his son.
145. Yeaon, his son.
146. Yeagor Arkashav.
147. Alexsandra, his wife.
148. Martin, his step-son.
149. Nekolaie, his step-son.
150. Stepan, his step-son.
151. Kereek, his son.
152. Arsaynee, his son.
153. Tatayahnah, his daughter.
154. Timofay Evanov.
155. Fevronia, his daughter.
156. Paymen Kooznitzov.
157. Oseep Baizyahzeekov.
158. Alexsandra, his wife.
159. Paul, his son.
160. Kahsaynyah, his step-daughter.
161. Avdokia, his step-daughter.
162. *Kahsaynyah, his daughter.*
163. *Ivan Paranchin.*
164. Zaharrov Evemainov.
165. Keereenayah, his wife.
166. Fevronia, his daughter.
167. Ivan Hapov.
168. Anna, his sister-in-law.
169. *Alexsandra, his daughter.*
170. Ivan, his son.
171. Yeagor Korchootin.
172. Zachar Saydeek.
173. Oosteenia, his wife.
174. Vasseelee, his son.
175. Marvra, his daughter.
176. *Nekon, his nephew.*
177. Feelip Saydeek.
178. Stepan Skahvortsov.
179. Philip Vollkov.
180. Ellen, his daughter.
181. Matroona, his daughter.
182. Markiel Vollkov, his son.
183. Gavreelo Korchurgin.
184. Lukaylean, his son.
185. *Ivan Sootyahgen.*
186. Heeyoniah, his wife.
187. Aneesia, his daughter.
188. Emelian Sootyahgen.
189. Marko Korchootin.
190. Dareyah, his wife.
191. Ivan, his son.
192. Zeenovia, his daughter.
193. Timofay Glottov.
194. Maria, his wife.
195. ———, his son.
196. Ivan, his son.
197. Yeafeemia, his daughter.
198. Iraklin Mandrigan.
199. Oosteenie, his wife.
200. Eeon, his son.
201. Paul Soovorrov.
202. Vassa, his wife.
203. ———, *his son.*
204. Akyleena, his mother.
205. *Agrafeena, his adopted girl.*
206. Yeafeem Korchootin.
207. Palahgayee, his wife.
208. *Peter, his son.*
209. Luka Mandrigan.
210. Eereena, his wife.
211. Neekeeta Yitchmainov.
212. Christeena, his daughter.
213. Domenah, his daughter.
214. Taheesah, his daughter.
215. Ivan Yitchmainov.
216. Michael Korzerov.
217. Alexsandra, his wife.
218. Stepan Korzerov.
219. Paul Korzerov.
220. *Ivan Kozlov.*
221. Palahgayah, his mother.
222. Feodar, her son.
223. *Eveducksia, her daughter.*
224. Platone Tarakanov.
225. Marfa, his wife

226. *Akoolena, his mother.*
227. Kerick Tarakanov.
228. Domian M. Kok (John Frater).
229. Oolyahnah, his wife.
230. Anna, his daughter.
231. Salomayah, Artamanov's daughter.

White men in charge.

1. Dr. McIntyre.
2. H. W. McIntyre.
3. Dr Cramer.
4. *John M. Morton.*
5. Chas. Bryant.
6. D. Webster.
7. ——, a cooper.
8. ——, a carpenter.

WHAT CONSTITUTES A NATIVE OF ST. PAUL.—There has been some petty divergence of opinion on the island as to who are the real "natives" thereof, because these natives enjoy certain privileges that are very valuable to them and coveted by all outside Alaskan brethren.

In this connection the people living here are divided into three classes; that is, the males:

First. The natives, properly speaking, or those who have been born and raised upon the Pribylov islands; not over one-quarter of the present adult population can lay claim to this title.

Second. The people who were living thereon, but not born natives at the time of the transfer of all Alaska, July, 1867; this class constitutes a majority of the citizens of the two islands as they exist to-day.

Third. The people who were living and working as sealers on the Pribylov islands at the date of the granting by the government of the present lease to the Alaska Commercial Company, August 31, 1870.

Of the above three divisions, strict justice and true equity unite in recognizing the third class as the natives of the Pribylov islands. This settles the question also to the best satisfaction of these people themselves, and removes every quibble of dispute in the premises. Accurate records of the men, women, and children living on each island at the date of the lease in 1871 can be found in the church registers on both St. Paul and St. George.

CURIOUS DERIVATION OF NATIVES' NAMES.—Any one at all acquainted with the Russian language will not fail to notice that the names in the above list have some odd derivations, relating to physical peculiarities, defects, and other originations that are more or less comical in their suggestions. I was told by a very bright Russian, who spent a season here, 1871–'72, as special agent of the Treasury Department, that the Aleutian ancestors of these people when they were converted and baptized into the Greek Catholic church received their names, bran new, from the fertile brains of the priests, who, after exhausting the common run of Muscovitic titles, such as our Smiths and Joneses, were compelled to fall back upon some personal characteristics of the new claimant for civilized nomenclature. Thus we have to-day on the seal-islands a "Stepan Bayloglazov", or "Son of a White Eye", "Oseep Baizyahzeekov", or "Son of a Man without a Tongue". A number of the old Russian governors and admirals of the imperial navy are represented here by their family names, though I do not think, from my full acquaintance with the name-sakes, that the distinguished owners in the first place had anything to do with their physical embodiment on the Pribylov islands.

CAUSES OF DEATH AMONG THE PEOPLE.—The principal cause of death among the people, by natural infirmity, on the seal-islands, is the varying forms of consumption and bronchitis, always greatly aggravated by that inherited scrofulous taint or stain of blood which was, in one way or another, flowing through the veins of their recent progenitors, both here and throughout the Aleutian islands. There is nothing worth noticing in the line of nervous diseases, unless it be now and then the record of a case of alcoholism superinduced by excessive quass drinking. This "makoolah" intemperance among these people, which was not suppressed until 1876, was a chief factor to the immediate death of infants; for, when they were at the breast, the mothers would drink quass to intoxication, and the stomachs of the newly-born Aleuts or Creoles could not stand the infliction which they received, even second-hand. Had it not been for this wretched spectacle, so often presented to my eyes in 1872–'73, I should hardly have taken the active steps which I did to put the nuisance down; for it involved me, at first, in a bitter personal controversy, which, although I knew at the outset it was inevitable, still weighed nothing in the scales against the evil itself.*

A few febrile disorders are occurring, yet they yield readily to good treatment. The chief source of sickness used to arise from the wretched character of the barrabkies in which they lived; but it was, at first, a very difficult matter to get frame houses to supplant successfully the sod-walled and dirt-roofed huts of the islands.

DIFFICULTY OF GETTING SUITABLE HOUSES.—Many experiments, however, were made, and a dozen houses built, ere the result was as good as the style of primitive housing, when it had been well done and kept in best

*This evil of habitual and gross intoxication, under Russian rule, was not characteristic of these islands alone, it was universal throughout Alaska. Sir George Simpson, speaking of the subject, when in Sitka, April, 1842, says: "Some reformation certainly was wanted in this respect; for of all the drunken, as well as of all the dirty places that I had visited, New Archangel [Sitka] was the worst. On the holidays in particular, of which, Sundays included, there are one hundred and sixty-five in the year, men, women, and even children were to be seen staggering about in all directions." [Simpson: *Journey Around the World;* 1841–'42, p. 88.]

Surprise has often been genuine among those who inquire, over the fact that there is no law officer here at either village, and wonder is expressed why such provision is not made by the government. But, when the following facts relative to this subject are understood, it is at once clear that a justice of the peace and his constabulary, would be entirely useless, if established on the seal-islands. As these natives live here, they live as a single family in each settlement, having one common purpose in life and only one; what one native does, eats, wears, or says, is known at once to all the others, just as whatsoever any member of our household may do will soon be known to us all who belong to its organization; hence if they steal or quarrel among themselves, they keep the matter usually to themselves, and settle it to their own satisfaction. Were there rival villages on the islands and diverse people and employment, the case would be reversed, and need of legal machinery apparent.

possible repair. In such a damp climate, naturally, a strong moldy smell pervades all inclosed rooms which are not thoroughly heated and daily dried by fires; and, in the spring and fall frost works through and drips and trickles like rain adown the walls. The present frame houses occupied by the natives owe their dryness, their warmth and protection from the piercing "boorgas", to the liberal use of stout tarred paper in the lining. The overpowering mustiness of the hallways, outhouses, and, in fact, every roofed-in spot, where a stove is not regularly used, even in the best-built residences, is one of the first disagreeable sensations which the new arrivals always experience when they take up their quarters here. Perhaps, if it were not for the nasal misery that floats in from the killing-grounds to the novice, this musty, moldy state of things up here would be far more acute, as an annoyance, than it is now. The greater grief seems to soon fully absorb the lesser one; at least in my own case, I can affirm the result.

AMIABLE CHARACTER OF THE NATIVES.—These people are singularly affectionate and indulgent toward their children. There are no "bald-headed tyrants" in our homes, as arbitrary and ruthless in their rule as are those snuffly babies and young children, on the seal-islands. While it is very young, the Aleut gives up everything to the caprice of his child, and never crosses its path or thwarts its desire; the "deetiah" literally take charge of the house; but as soon as these callow members of the family become strong enough to bear burdens and to labor, generally between 12 and 15 years of age, they are then pressed into hard service relentlessly by their hitherto indulgent parents; the extremes literally meet in this application.

They have another peculiarity: when they are ill, slightly or seriously, no matter which, they maintain or affect a stolid resignation, and are patient to positive apathy. This is not due to deficiency of nervous organization, because those among them who exhibit examples of intense liveliness and nervous activity, behave just as stolidly when ill as their more lymphatic townsmen do. Boys and girls, men and women, all alike are patient and resigned when ailing and under treatment; but it is a bad feature after all, inasmuch as it is well-nigh impossible to rally a very sick man who himself has no hope, and who seems to mutely deprecate every effort to save his life.

DISPOSITION TO GAMBLE.—The inherent propensity of man to gamble is developed here to a very appreciable degree, but it in no way whatever suggests the strange gaming love and infatuation with which the Indians and Eskimo elsewhere of Alaska are possessed. The chief delight of the men and boys of the two villages is to stand on the street corners "pitching" half dollars; so devoted, indeed, have I found the native mind to this hap-hazard sport, that frequently I would detect groups of them standing out in pelting gales of wind and of rain, "shying" the silver coin at the little dirt-driven pegs. A few of them, men and women, play cards with much skill and intelligence.

CHILDREN'S SPORTS.—The urchins play marbles, spin tops, and fly kites, intermittently, with all the feverish energy displayed by the youth of our own surroundings; they frolic at base-ball, and use "shinny" sticks with much volubility and activity. The girls are, however, much more repressed, and, though they have a few games, and play quietly with quaintly dressed dolls, yet they do not appear to be possessed of that usual feminine animation so conspicuously marked in our home life.

ATTACHMENT TO THE ISLANDS.—The attachment which the natives have for their respective islands was well shown to me in 1874. Then, a number of St. George people were taken over to St. Paul, temporarily, to do the killing incidental to a reduction of the quota of 25,000 for their island and a corresponding increase at St. Paul; they became homesick immediately, and were never tired of informing the St. Paul natives that St. George was a far handsomer and more enjoyable island to live upon! that walking over the long sand reaches of "Pavel" made their legs grievously weary, and that the whole effect of this change of residence was "ochen scootchnie". Naturally, the ire of the St. Paul people rose at once, and they retorted in kind, indicating the rocky surface of St. George, and its great inferiority as a seal-island. I was surprised at the genuine feeling on both sides, because, as far as I could judge from a residence on each island, it was a clear case of tweedle-dee and tweedle dum between them, as to opportunities and climate necessary for a pleasurable existence. The natives, themselves, are of one and common stock, though the number of Creoles on St. George is relatively much larger than on St. Paul; consequently the tone of the St. George village is rather more sprightly and vivacious.

CREATURE COMFORTS.—As far as a purely physical existence goes, the American method of living on and in the climate of the Pribylov islands is highly conducive to strength and health. Tea and coffee, seasoned with condensed milk and lump sugar; hot biscuits, cakes, and waffles; potatoes, served in every method of cookery; salt salmon, cod-fish, and corned beef; mess pork; and, once a week, a fresh roast of beef or steaks; all the canned vegetables and fruits; all the potted sauces, jams, and jellies; pies, puddings, and pastries; and the exhaustive list of purely sea-faring dishes, such as pea and bean, barley and rice soups, curries, and maccaroni; these constitute the staples and many of the luxuries with which the agents of the Alaska Commercial Company prolong their existence while living here in the discharge of their duties, and to which they welcome their guests for discussion and glad digestion.

A piano on St. Paul in the company house, an assorted library, embracing over 1,000 volumes, selected from standard authors in fiction, science, and history, together with many other unexpected adjuncts of high comfort for bo[illegible] and soul, will be found on these islands, wholly unexpected to those who first set foot upon them. A small [illegible]an printed library has also been given by the company to the natives on each island for their special entertainment. The rising generation of sealers here, if they read at all, will read our own typography.

G. FOOD AND STORE SHOPPING OF THE NATIVES [Section 5].—Most of these articles of food mentioned heretofore are purchased by the natives in the company's store at either island; this food and the wearing apparel, crockery, etc., which the company bring up here for the use of the people, is sold to them at the exact cost price of the same, plus the expenses of transportation; and, many times within my knowledge, they have bought goods here, at these stores, at less rates than they would have been subjected to in San Francisco; the object of the company is not, under any circumstances, to make a single cent of profit out of the sale of these goods to the natives; they aim only to clear the cost and no more. Instructions to this effect are given to its agents, while those of the government are called upon to take notice of the fact.

The store at St. Paul, as well as that at St. George, has its regular annual "opening" after the arrival of the steamer in the spring, to which the natives seem to pay absorbed attention; they crowd the buildings day and night, eagerly looking for all the novelties in food and apparel; these slouchy men and shawl-hooded women, who pack the area before the counters here, seem to feel as deep an interest in the process of shopping as the most enthusiastic votaries of that business do in our own streets; it certainly seems to give them the greatest satisfaction of their lives on the Pribylov islands.

H. VIGILANCE OF THE NATIVES [Section 7].—One of the peculiarities of these people is that they seldom undress when they go to bed—neither the men, women, nor children; and also that at any and all hours of the night during the summer season, when I have passed in and out of the village to and from the rookeries, I always found several of the natives squatting before their house doors or leaning against the walls, stupidly staring out into the misty darkness of the fog, or chatting one with the other over their pipes. A number of the inhabitants, by this disposition, are always up and around throughout the settlement during the entire night and day. In olden times, and even recently, these involuntary sentinels of the night have often startled the whole village by shouting at the top of their voices the pleasant and electric announcement of the "ship's light!" or have frozen it with superstitious horror in the recital, at daybreak, of ghostly visions.

I. HABITS OF FUR-SEAL PUPS [Section 9].—I have repeatedly watched young pups as they made advances to nurse from another pup's mother; the result invariably being, that while the mother would permit her own offspring to suckle freely, yet, when these little strangers touched her nipples, she would either move abruptly away, or else turn quickly down upon her stomach, so that the maternal fountains were inaccessible to the alien and hungry "kotickie". I have witnessed so many examples of the females turning pups away, to suckle only some particular other one, that I feel sure I am entirely right in saying that the seal-mothers know their own young; and that they will not permit any others to nurse save their own. I believe that this recognition of them is due chiefly to the mother's scent and hearing.

J. PARASITES OF THE FUR-SEAL [Section 9].—The fur-seal spends a great deal of time, both at sea and on land, in scratching its hide; for it is annoyed by a species of louse, a *pediculus*, to just about the same degree and in the same manner that our dogs are by fleas. To scratch, it sits upon its haunches, and scrapes away with the toe-nails of first one and then the other of its hind-flippers; by which action it reaches readily all portions of its head, neck, chest, and shoulders; and, with either one or the other of its fore-flippers, it rubs down its spinal region back of the shoulders to the tail. By that division of labor with its feet, it can promptly reduce, with every sign of comfort, any lousy irritation wheresoever on its body. This *pediculus* peculiar to the fur-seal attaches itself almost exclusively to the pectoral regions; a few, also, are generally found at the bases of the auricular pavilions.

When the fur-seal is engaged in this exercise, it cocks its head and wears exactly the same expression that our common house-dog does while subjugating and eradicating fleas; the eyes are partly or wholly closed; the tongue lolls out; and the whole demeanor is one of quiet but intense satisfaction.

The fur-seal appears also to scratch itself in the water with the same facility and unction so marked on land; only it varies the action by using its fore-hands principally, in its fluvatile exercise, while its hind-feet do most of the terrestrial scraping.

K. HEALTHINESS OF THE FUR-SEALS [Section 9].—While I have written with much emphasis upon the total absence of any record as to the prevalence of an epidemic in these large rookeries, I should, perhaps, mark the fact that no symptoms of internal diseases have ever been noticed here, such as tuberculosis of the lungs, etc., which invariably attack and destroy the fur-seal when it is taken into confinement, as well as the sea-lions also; the latter, however, have a much greater power of endurance under such artificial circumstances of life. The thousands upon thousands of disemboweled Pribylov fur-seal carcasses have never presented abnormal or diseased viscera of any kind.

L. BEHAVIOR OF FUR-SEALS AT NIGHT [Section 9].—I naturally enough, when beginning my investigation of these seal-rookeries, expected to find the animals subdued at night, or early morning, on the breeding-grounds; but a few consecutive nocturnal watches satisfied me that the family organization and noise was as active at one time as at another throughout the whole twenty-four hours. If, however, the day preceding had chanced to be abnormally warm, I never failed then to find the rookeries much more noisy and active during the night than they were by daylight. The seals, as a rule, come and go to and from the sea, fight, roar, and vocalize as much during midnight moments as they do at noonday times. An aged native endeavored to satisfy me that the "seecatchie" could

see much better by twilight and night than by daylight. I am not prepared to prove to the contrary, but I think that the fact of his not being able to see so well himself at that hour of darkness was the true cause of most of his belief in the improved nocturnal vision of the seals.

As I write, this old Aleut, Phillip Vollkov, has passed to his final rest—"un konchielsah" winter of 1878–'79. He was one of the real characters of St. Paul; he was esteemed by the whites on account of his relative intelligence, and beloved by the natives, who called him their "wise man", and who exulted in his piety. Phillip, like the other people there of his kind, was not much comfort to me when I asked questions as to the seals. He usually answered important inquiries by crossing himself, and replying, "God knows." There was no appeal from this.

M. SULLENNESS OF OLD MALE SEALS [Section 10].—The old males, when grouped together by themselves, at the close of the breeding-season, indulge in no humor or frolicsome festivities whatsoever. On the contrary, they treat each other with surly indifference. The mature females, however, do not appear to lose their good nature to anything like so marked a degree as do their lords and masters, for they will at all seasons of their presence on the islands be observed, now and then, to suddenly unbend from severe matronly gravity by coyly and amiably tickling and gently teasing one another, as they rest in the harems, or later, when strolling in September. There is no sign given, however, by these seal-mothers of desire or action in fondling or caressing their pups; nor do the young appear to sport with any others than the pups themselves, when together. Sometimes a yearling and a five or six months-old pup will have a long-continued game between themselves. They are decidedly clannish in this respect—creatures of caste, like Hindoos.

N. LEAPING OUT OF WATER: "DOLPHIN JUMPS" [Section 10].—As I never detected the sea-lions or the hair-seals leaping from the water around these islands, in those peculiar dolphin-like jumps which I have hitherto described, I made a note of it early during my first season of observation, for corroboration in the next. It is so: neither the sea-lion nor the hair-seal here ever leaped from the ocean in this agile and singular fashion heretofore described. Allen, so conservative usually, seems, however, to have fallen into an error by reading the notes of Mr. J. H. Blake, descriptive of the sea-lions of the Gallapagos islands. As Allen quotes them entire in a foot-note (page 211, *History of North American Pinnipeds*), I am warranted in calling attention to the fact, that no authentic record has as yet been made of such peculiar swimming by *Phocidæ*, or the sea-lion branch of the *Otariidæ*. My notice has been called to this mistake by Professor Allen's own note, page 367, upon a quotation from my work, citing Mr. Blake's notes above referred to, which are themselves very interesting, but do not even hint at a dolphin-jump.

How fast the fur-seal can swim, when doing its best, I am naturally unable to state. I do know that a squad of young "holluschickie" followed the "Reliance", in which I was sailing, down from the latitude of the seal-islands to Akootan pass with perfect ease; playing around the vessel, while she was logging straight ahead, 14 knots to the hour.

The fur-seal, the sea-lion, the walrus, and the hair-seal all swim around these islands, and in these waters, submerged, extended horizontally and squarely upon their stomachs. I make this note here because I am surprised to read [on page 651, Allen: *Hist. N. A. Pinnipeds*] that the harp (hair) seal's "favorite position when swimming, as affirmed by numerous observers, is on the back or side, in which position they also sleep in the water". Although this is a far-distant, geographically speaking, relative of the hair-seal of St. Paul island, yet the remarkable difference in fashion of swimming seems hardly warranted, when the two animals are built exactly alike. Still, I have no disposition to question, earnestly, the truth of the statement, inasmuch as I have learned of so many very striking radical differences in habits of animals as closely related, as to pause, ere seriously doubting this assertion that a harp-seal's favorite way in swimming is to lie upon its back when so doing. It is simply an odd contradiction to the method employed by the hair-seals of the North Pacific and of Bering sea.

While I am unable to prove that the fur-seal possesses the power to swim to a very great depth, by actual tests instituted, yet I am free to say that it certainly can dive to the uttermost depths, where its food-fish are known to live in the ocean; it surely gives full and ample evidence of possessing the muscular power for that enterprise. In this connection, it is interesting to cite the testimony of Mr. F. Borthen, the proprietor of the Fro islands, a group of small islets off Trondhjems fiörd, in Norway; this gentleman has had an opportunity of watching the gray-seal (*Halichœrus grypus*) as it bred and rested on these rocks during an extended period of time. Among many interesting notes as to the biology of this large hair-seal, he says, "As a proof that they (the seals) fetch their food from a considerable depth, it is related that a few years ago a young one was found caught by one of the hooks of a fishing line that was placed at a depth of between 70 and 80 fathoms, on the outer side of the islands. Gray-seals have several times been seen to come up to the surface with lings (*Molva vulgaris*) and other deep-water fishes in their mouths, such fishes seldom or never found at a less depth than between 60 and 70 fathoms."—[Robert Collett *on the Gray Seal, Proc. Zool. Soc.*, London: Part ii, 1881, p. 337.]

O. MONSTROSITIES AMONG THE SEALS.—Touching this question of monstrosities, I was led to examine a number of alleged examples presented to my attention by the natives, who took some interest, in their sluggish way, as to what I was doing here. They brought me an albino fur-seal pup, nothing else, and gravely assured me that they knew it owed its existence to the fecundation of a sea-lion cow by a fur-seal bull; "if not so, how could it get that color?" I was also confronted with a specimen—a full and finely grown four-year-old *Callorhinus* which had,

at some earlier day, lost its testicles either by fighting or accident while at sea; perhaps shaven off by the fangs of a saw toothed shark, and also gravely asked to subscribe to the presence of a hermaphrodite!

Undoubtedly some abnormal birth-shapes must make their appearance occasionally; but, at no time while I was there, searching keenly for any such manifestation of malformation on the rookeries, did I see a single example. The morphological symmetry of the fur-seal is one of the most salient of its characteristics, viewed as it rallies here in such vast numbers; but the osteological differentiation and asymmetry of this animal is equally surprising.

P. THE DERIVATION OF THE NOMENCLATURE OF THE ROOKERIES. *The Reef rookery*—"The Reef", so-called on account of that dangerous line of submerged rocks, scarcely awash, which makes out to the southward from the point. The very first seals of the season usually land here every spring.

Zoltoi hauling-grounds.—From "Zolotoi", or "golden", a Russian title given to the beach on account, perhaps, of its beauty, contrasted with the rough, rocky coasts elsewhere on the island. There is no trace of precious mineral in its composition, however, or even the glint of iron pyrites.

Gorbotch rookery.—"Gorbotch", or "humpback"; this name doubtless given it from the broken-backed outline to the west shore of the reef peninsula, on which the rookery is located.

Nah Speel rookery.—"Nah Speel", corrupted from "speetsah", or point, why so distorted I have not satisfactorily learned from the people. It arises from some localism, undoubtedly, pertinent long ago, but since forgotten.

Lukannon rookery.—"Lukannon"; so named after one of the Russian pioneers, a sailor, who is said to have taken from St. Paul island in 1787, over 5,000 sea-otters, aided by another promyshlenik, named Kaiekov; in the following year they only secured 1,000; and since then none have ever been taken from there to notice; while during the last forty years not one, even, has been seen.

Keetavie rookery.—"Keetavie", from "Keet", or Whale. When the whaling fleets were active in these waters, 1849–'56, a very large right whale, killed by some ship's crew, drifted ashore at the point here, and has thus given this name to it.

Tolstoi rookery.—"Tolstoi", or "thick". This is an indefinite name which the Russians use all over their geography of Alaska, just as we employ "Deer Creek" or "Muddy Fork" in our topographical nomenclature of the West. This point at St. Paul is, however, a thick and solid one; more so than any other headland there.

Zapadnie rookery.—"Zapadnie," or "westward"; one of the few bear stories, which the natives told me, in response to my queries as to the presence of polar "medvaidskie" in early times, is located between Boga Slov and Zapadnie point; there are one or two rude basaltic caves on the slopes of this hill, into which the natives can squeeze themselves by great effort; here, they have declared to me, that as recently as 1848, a large polar bear lived and infested the island for some time. It was finally shot by a *posse comitatus* of the people, who were assisted by an English whale-boat's crew that, noticing the skurry on land, came ashore and joined in the hunt, armed with their lances. No record is made of bruin on the Pribylov since the death of this one. It undoubtedly was astray from St. Matthew island, two hundred miles to the northward. Prior to this event, the natives count several bear fights and routs—at wide intervals, however—since the occupation of the islands.

Polavina rookery.—"Polavina", or "half way"; so named because the point and the old deserted village site contiguous was nearly half-way between Novastoshnah and the village. An officer of the government, C. P. Fish, United States Signal Service, in 1874, started out to measure anew the height of Polavina Sopka; he strapped a barometer to his shoulders, and left the village early one July morning. The fog thickened up that noon rather more solidly than usual, and when he came down he missed the sealers' well-defined trail between Northeast point and Lukannon, and brought up on the shore of that little round lake, just southwest of the point. He actually passed the whole of the remaining daylight, six or seven hours, in walking around it, and declared that he would never have left this unconscious circular tramp had the fog, as is usual, not lifted just at late evening and given him better bearings. He never knew or suspected until then that he was walking in his own tracks. This is a true fog story.

Novastoshnah rookery.—"A place of recent growth," so named from the fact that in early times—1787–'90—Hutchinson's hill formed an island distinct and well-defined from St. Paul; the people then used to go from Vesolia Mista over to Northeast point in boats.

THE ST. GEORGE ROOKERIES.—There is nothing peculiar to the nomenclature of the St. George rookeries; they all bear English names around the village, while "*Zapadnie*" is named simply as it lies west therefrom, and "*Starry Ateel*" because it is near the site of an old settlement on the island.

FIRST ARRIVALS OF "HOLLUSCHICKIE" USUALLY APPEAR MAY 14TH–15TH.—The first "driving", for the season, of the "holluschickie" seldom takes place sooner than the 12th or 15th of May; then only small numbers are secured, usually on the Reef point at St. Paul, and at the Great Eastern rookery on St. George; they are driven thus early for food, though the skins are always carefully taken and accepted by the company; the sealing season opens lawfully by the 1st of June and closes on the 15th of August. But in practice it does not begin until the 12th–14th of June and ends by the 20th–25th of July.

ANNUAL CROAKING BY THE SEALERS.—I noticed in this connection a very queer similarity between the sealers on St. Paul and our farmers at home; they, just as the season opens, invariably prophesy a bad year for seals and a

scant supply; then when the season closes they will gravely tell you that there never were so many seals on the island before! I was greeted in this manner by the agents of the company and the government in 1872, again in 1873, and again in 1874. I did not get up to the grounds in 1876 soon enough to hear the usual spring croaking of of disaster; but arrived, however, in time to hear the regular cry of "never was so many seals here before"!

40. FINAL NOTES AND TABLES RELATIVE TO THE VALUE, PROTECTION, AND GROWTH OF THE FUR-SEAL; AND THE REVENUE DERIVED FROM THAT INDUSTRY ON THE PRIBYLOV ISLANDS.

AN EXHIBIT OF VALUES GIVEN BY VENIAMINOV.—Pt. i: *Zapieskie, etc.*, p. 83, showing the relative importance, commercially, of the land and marine furs taken from the Oonalashka district (and sold) in 1833, by the Russian American Company. (This district embraces the Pribylov islands.)

Sort of fur.	Number of skins.	Price per skin.	Sum of value.	Reduced to our currency.	Remarks by the author, H. W. E.
Sea-otters	100	450 paper rubles.	45,000	$9,000	*Enhydra marina.*
Black foxes	300	150 paper rubles.	45,000	9,000	*Vulpes fulvus* var. *argentatus.*
Cross foxes	600	25 paper rubles.	15,000	3,000	*Vulpes fulvus* var. *decussatus.*
Red foxes	500	10 paper rubles.	5,000	1,000	*Vulpes fulvus.*
Blue foxes	1,500	10 paper rubles.	15,000	3,000	*Vulpes lagopus.*
Land-otters	80	50 paper rubles.	4,000	800	*Lutra canadensis.*
Fur-seals	15,000	50 paper rubles.	750,000	150,000	*Callorhinus ursinus.*
Walrus-ivory	100 poods.	80 paper rubles.	8,000	1,600	A "pood is 36 1/6 pounds avoirdupois.
Whalebone	200 poods.	40 paper rubles.	8,000	1,600	The baleen from the right whale, *Balæna.*
Miscellaneous furs			1,000	200	Deer and sea-lion skins, odds and ends, etc.
Sum total			896,000	$179,200	

The country (Alaska) is divided up into 5 districts: Sitka, Kadiak, Oonalashka, Atka, and the North.

This whole country is under the control and government of the "Russian-American Company". * * * The business is conducted with a head, or a colonial governor, assisted by officers of the Imperial navy (Russian), and those of the company's fleet, and other chiefs; in every one of the districts the company has an office, which is under the direction of an office chief (or agent), and he in turn has foremen (or "bidarsheeks").

The company on the island of St. Paul killed from 60,000 to 80,000 fur-seals per annum, but in the last time (1833?), with all possible care in getting them, they took only 12,000. On the island of St. George, instead of getting 40,000 or 35,000, only 1,300 were killed. * * * [Veniaminov: *Zapieskie, etc.*, pt. i: chap. xii, 1840.]

The table and extracts which I quote above give me the only direct Russian testimony as to the value of the Pribylov fur-seal catch when the skins were in scant supply. It will be seen that they were worth then just $10 each.

I now append a brief but significant extract from Techmainov—significant simply because it demonstrates that all Russian testimony, other than Veniaminov's, is utterly self-contradictory in regard to the number of seals taken from the Pribylov islands. Techmainov first gives a series of tables which he declares are a true transcript and exhibit of the skins sold out of Alaska by the Russian-American Company. The latest table presented, and up to the date of his writing, 1862, shows that 372,894 fur-seal skins were taken from the Pribylov islands, via Sitka, to the Russian markets of the world, in the years 1842–1862, inclusive; or giving an average catch of 18,644 per annum. (p. 221.) Then further on as he writes (nearly one hundred pages), he stultifies his record above quoted by using the language and figures as follows:

"In earlier times more were taken than in the later; at present (1862) there are taken from the island of St. Paul 70,000 annually without diminishing the number for future killing; on St. George, 6,000. * * * From 1842 to 1861 there were taken from the island of St. Paul 277,778 seal skins; blue foxes, 10,508; walrus teeth, 104 poods; from St. George, 31,923 fur-seals; blue foxes, 24,286." [P. Techmainov: *Eestorecheskoi Obozerainia Obrazovania*, Russian-American Company; pt. ii, p. 310, 1863, St. Petersburg.] Further comment is unnecessary upon this author, who thus writes a "history of the doings of the Russian-American Company". Still, since Veniaminov's time, 1838–'40, it is the only *prima facie* testimony that we have touching these subjects while under Russian domination.

RUSSIAN GOVERNORS CONTROLLING THE PRIBYLOV ISLANDS.—The following list gives the names of the several autocratic governors of the Russian-American Company, who, in their order of mention, exercised absolute control over the the Pribylov islands between 1799 and 1867, inclusive; 1, Baranov; 2, Yahnovskie; 3, Moorayvev; 4, Chestyahkov; 5, Wrangell; 6, Kooprianov; 7, Etholine; 8, Tebenkov; 9, Rossenburg; 10, Viaviatskie; 11, Foragelm; 12, Maxsutov. Of the above, with the exception of Baranov, who was a self-made man, and General Viaviatskie, of the Russian army, all the others were admirals and captains in the Imperial navy of Russia.

FIRST EXEMPTION OF FEMALES IN DRIVING.—In the details of an old letter from a Creole agent of the Russian-American Company, on St. Paul, in 1847, I find the following side reference to the number of skins which were shipped from the Pribylov islands that season: [Ms. letter of Kazean Shiesneekov, St. Paul island, 1847.]

5,606 "holluschickov" (young males).

1,894 "sairiee" (four and five year-old males), or a total of 7,497.

This is interesting because it is the record of the first killing on the seal-islands when the females were entirely exempted from slaughter.

THE SEAL-ISLANDS WERE THE EXCHEQUER OF THE RUSSIAN-AMERICAN COMPANY: 1799–1825.—"The Russians in their colonial possession under Baranov, made, first, the seal-skin the basis of all transactions with foreigners, by buying up whole cargoes of goods and provisions brought into this country by English and American traders, and paying for the same in this way. In other words, the seal-islands were the exchequer where the Russian authorities could with certainty turn and lay their hands upon the necessary currency. These American, English, and other foreign sea-captains, having disposed of their supplies at Sitka or Kadiak in this manner, took their fur-seal skins to China and disposed of them at a handsome advance for tea, rice, etc., in exchange. The profits made by these foreigners having reached the ears of the Russian home management of the fur company controlling Alaska, it was ordered then that payments in fur-seal skins for these foreign supplies should cease, and that the Russians themselves would ship their skins to China and enjoy the emolument thereof. The result of this action was that the Chinese market did not prove as valuable to them as it was to the foreigners; it became overstocked, and a general stagnation and depression of the seal-business took place and continued until a change of base, in this respect, was again made, and the skins of the fur-seal were shipped, together with the beaver, in bulk to the great Chinese depot of Kiachta, where the Russians exchanged these peltries for the desired supplies of tea; the trade thereof assuming such immense proportions that the record is made where, in a single year, the Russian Fur Company paid to their government the enormous duty upon importations of tea alone of 2,000,000 silver rubles, or $1,500,000. This was the period in the history of the seal-islands when, for a second time, and within the writing of Veniaminov, the seal-life thereon was well nigh exterminated. The first decimation of these interests took place in the last decade of the eighteenth century and shortly after the discovery of the islands, when, it is stated, 2,000,000 skins of these animals were rotting on the ground at one time. Rezanov applied the correction very promptly in the first instance of threatened extermination of these valuable interests, and when the second epoch of decimation occurred in 1834 to 1836, Baron Wrangell, admirably seconded by Father Veniaminov, checked its consumption. These are instances of care and far-sightedness which are refreshing to contemplate."—Ivan Petrov: *Rept. on Pop. and Resources of Alaska; Ex. Doc. No.* 40, *46th Cong., 3d Sess.*, 1881.

IRREGULARITY OF THE APPEARANCE OF PELAGIC FUR-SEALS.—While investigating the subject of the actual numbers of fur-seals secured at sea, outside of the Pribylov islands, I learned from Captain Lewis (Hudson Bay Company's "Otter") that these animals never appear from season to season along the northwest coast, in the same general aggregate. For illustration, he cited the fact that in 1872, "immense numbers of fur-seal pups and yearlings" were observed in the ocean off Vancouver's island and the entrance to Fuca straits, "but last year (1873) very few of them again were seen." He thought that in the case of the unwonted abundance of fur-seals there during 1872, it was due to the fact "that these young seals must have lost their bearings, somewhat, in going north, and ran into the coast for a better point of departure". He declared, also, that fur-seals had never, during his 30 year's service on the northwestern coast, been known to appear in such great numbers before, nor did any other Hudson Bay man know to the contrary. In 1872 he thought that "8,000 to 9,000 skins, chiefly pups and yearlings" would be a fair estimate of the entire quantity taken; for 1873 his figures showed only "600 or 700 skins—these were all older ones".

RECENT ERRONEOUS STATEMENTS IN REGARD TO PELAGIC BIRTH OF FUR-SEALS.—Allen [in his *History of North American Pinnipeds*, pp. 772–773] quotes a writer, who declares that any statement that the fur-seal breeds alone on the Pribylov islands to the exclusion of all other grounds on the northwest coast of America and Alaska, is "preposterous to his mind". This author claims to know by his "own personal observation" that the fur-seal does "have pups in open ocean off the entrance to Fuca straits"! On the contrary, I assert that it is a physical impossibility for the *Callorhinus* to bring forth its young alive in the water; the pup would sink like a stone instantly after birth, and the mother be wholly helpless to save it.

I should not heed this statement of Mr. Swan, reinforced by that of an old sailor, so gravely entered by Allen, were it not for his introduction on the following page (773) of an innocent announcement of fact by Prof. D. S. Jordan, who by it is unfortunately made to appear in the light of sustaining the idle theory of pelagic birth. Jordan's simple declaration that he had seen a "live fur-seal pup [June 1, 1880] at Cape Flattery, taken from an old seal just killed, showing that the time of bringing them forth was just at hand", is correct as far as it goes; but remember, that this pup had been alive in its mother's womb for eleven months prior to the day Jordan saw it; and, ten days or three weeks later at the longest, this parent, if undisturbed, would have naturally brought it forth in the fullness of time on either St. Paul or St. George, of the Pribylov group. She could have made the journey there in six or seven days easily from Fuca straits, if she had been pressed to do so by the expiration of her period of gestation.

Naturally enough, the careful naturalist, like Allen, no matter how able, will be deceived now and then in this manner, by untrustworthy statements made by those who are supposed to know by personal observation of what they affirm. Mr. Swan has passed nearly an average lifetime on the northwest coast, chiefly in the waters of Washington territory, and has rendered to natural science and to ethnology efficient and valuable service by his

labor in collecting, and his notes in regard to the Makah Indians of Cape Flattery; hence his erroneous statements above referred to (as to the fur-seal) had a *prima facie* weight with Allen, who, therefore, inserted them, and thus gave the romance an appearance of reality, which I cannot pass by in silence. The other, though hesitating, authority, Charles Bryant, is an old mariner, who has also been well situated by virtue of eight years' residence on St. Paul island; he ought to know better.

ORIGINAL SOURCE OF ERROR IN REGARD TO NUBILITY OF FEMALE FUR-SEALS.—*Veniaminov: Zapieskie, oö Oonalashkenskaho Otdayla:* Veniaminov little dreamed, as he labored over his queer calculations in 1834, that the then depleted rookeries of the Pribylov islands would have yielded, from 1868 to date, an annual average of more than three times 32,000 fur-seal skins; which number he at that time deemed the maximum limit of their ultimate production, should his tabulated advice be carried out. Is it not exceedingly strange that he never thought, during all his cogitations over this problem, of the real vital principle—of letting the females entirely alone—of sparing them strictly? I think that the worthy Bishop would have done so, had he passed more time on the rookeries himself. I cannot find, however, who the Russian was that had the good judgment, first of all men, to inaugurate a perpetual "zapooska" of the females on the Pribylov islands; it was done in 1847, for the first time, and has been rigidly followed ever since, giving the full expansion in 1857 to that extraordinary increase and beneficial result which we observe thereon to-day. I have been much amused in reading [Allen: *Hist. Pinnipeds*, p. 383] the argument of an old sailor, who had been stationed for eight years on these islands in charge of the United States Treasury interests. He claims to feel well assured that the female seals, when two years old, never land on the islands during that season of their age; remaining out at sea, and not coming to the Pribylov rookeries until their third year of growth! thus bearing their first young when four years old. I mention the fact, because it is not an original error of the aged treasury agent, but is evidently adopted from this account of Veniaminov, which was verbally translated and read to him in 1869, on St. Paul island, by one of the ex-agents of the Russian Company. The erroneous statement, however, is quoted in Allen: *Pinnipeds* (p. 383), with a grave preface by the author, that it is the result of eight years' study of the subject on the islands. Unfortunately, Veniaminov, himself, did not spend even eight consecutive weeks on the seal-grounds in question, and had he passed eight months there, investigating the matter, he would not—could not—have made this superficial blunder, in addition to his numerous other faulty announcements, etc., which the "*Zapieskie*" teems with, in regard to the seal-life.

CAUSES WHICH OCCASION AND DEMAND THE PRESENCE OF A REVENUE-MARINE CUTTER IN ALASKAN WATERS.—There remains an unwritten page in the history of the action of the government toward the protection of seal-life on the Pribylov islands, and it is eminently proper that it should be inscribed now, especially so since the author of this memoir was an eye-witness and an actor in the scene. When he first visited the seal-islands, in 1872–'73, he was compelled to take passage on the vessels of the company leasing the islands; compelled, because the government at that time had no means of reaching the field of action, except by the favor and the courtesy of the Alaska Commercial Company. This favor and this courtesy, as might be expected, was always promptly and generously proffered, and has never been alluded to as even an obligation or service rendered the Treasury Department. But, nevertheless, the thought occurred to me at the time, and was strengthened into conviction by 1874, that this indifference to its own self-respect and failure to support properly the aims of its agents up there, should end; and that the Treasury Department should detail one of its own vessels to visit, transport, and aid its officers on the Pribylov islands, and also be an actual living evidence of power to execute the law protecting and conserving the same.

In this sequence, do not misunderstand me; while the Alaska Commercial Company never entertained, and do not now entertain, the thought of refusing the favor asked by the government in transporting its own treasury officials to and from the seal-islands, yet, it would be a relief to that company if those agents aforesaid should be carried up and down upon the vessels of the government—a relief solely on the ground that a carping criticism is always made upon their courtesy and kindness in this respect, and a corresponding reflection thrown upon the treasury agents, who are compelled to take this method of conveyance, or else be absent from their field of duty, which the company does not propose to effect by barring them from its steamer, the aforesaid criticism notwithstanding.

Therefore, upon the occasion of my return from the field in question, October, 1874, I clearly recognized the immediate necessity of strengthening the arm of the government in that region, because, in addition to the foregoing reason, the following still more urgent one existed and exists:

Early in 1873 it became well known on the Pacific coast, that the officers of the law on the seal-islands had no means of enforcing the regulations protecting the seal-life on the same or in the waters adjacent; hence, a number of small craft, fitted out at San Francisco and contiguous ports, which cleared for the northwest coast and the Aleutian islands on "fishing ventures"; but, in reality, these vessels proceeded directly to the waters and rocks adjacent to the seal-islands, where, in plain sight of the villages on either islet, they shot the swimming seals with assumed indifference and great affection of legality!

In order, therefore, that this plain violation of law and its disastrous consequence should be effectually punished, and evaded, I published, and personally urged in 1874–'77, the urgent need and great propriety of enabling the responsible agents of the government on the Pribylov islands, to enforce the law as well physically as it could be

done theoretically; and pointed clearly then to the advantage and effect which a revenue marine cutter would have, employed for this purpose. By repeated and untiring appearance before the Committee on Appropriations in the House and the Senate, I finally secured the legal authority and the money for the object in view. And the late Captain Baily, in the "Richard Rush", made the first cruise in the season of 1877, that had been ordered and sustained by the government toward the direct protection of the seal-islands, and its valuable property thereon since 1869.

The interesting Alaskan reports, which have arisen from the incidental cruisings of the "Rush" and the "Corwin", United States Revenue Marine, owe their origin to the above chain of circumstances, and this service, so efficient and so valuable, will, I trust, be faithfully sustained by the government in the future.

THE AUTHOR'S CLOSING PRESENTATION OF THE SUBJECT.—As I end this memoir, I am aware of one omission which should not be overlooked. It is the absence of a concise and condensed table, which shall exhibit at a glance the whole physical progress made by the fur-seal, from birth to advanced puberty. Therefore, I submit the following presentation of that subject:

Table showing the relative growth, weight, etc., of the fur-seals.

[Compiled from the field-notes of the author, made upon the killing-grounds of St. George and St. Paul.]

GROWTH. (*A fair average example.*)	1 day old.	6 months old.	1 year old.	2 years old.	3 years old.	4 years old.	5 years old.	6 years old.	7 years old.	8 years old.	Remarks.
Callorhinus ursinus (male).	*Length.* 12 to 13 in.	*Length.* 24 in.	*Length.* 38 in.	*Length.* 45 in.	*Length.* 52 in.	*Length.* 58 in.	*Length.* 65 in.	*Length.* 72 in.	*Length.* 75 to 80 in.	*Length.* Ceases.	Direct, from tip of nose to root of tail.
Callorhinus ursinus (fem.).	12 to 13 in.	24 in.	37 in.	42½ in.	48 in.	50 in.	Ceases.	.....	.....	.....	Do.
GIRTH. (*Immediately behind fore-flippers.*)											
Callorhinus ursinus (male).	*Girth.* 9 to 10½ in.	*Girth.* 25 in.	*Girth.* 25 in.	*Girth.* 30 in.	*Girth.* 36 in.	*Girth.* 42 in.	*Girth.* 52 in.	*Girth.* 64 in.	*Girth.* 70 to 80 in.	*Girth.* 80 to 84 in.	8 year old citation an estimate only.
Callorhinus ursinus (fem.).	9 to 10 in.	25 in.	25 in.	30 in.	34 in.	36 in.	37 in.	Ceases.	.....	.....	
WEIGHT (*avoirdupois*).											
Callorhinus ursinus (male).	*Lbs.* 5 to 7½	*Lbs.* 39	*Lbs.* 40	*Lbs.* 58	*Lbs.* 87	*Lbs.* 135	*Lbs.* 200	*Lbs.* 280 to 350	*Lbs.* 400 to 500	*Lbs.* 500 to 600	7 and 8 year estimates are not based upon actual weights; an opinion merely.
Callorhinus ursinus (fem.).	5 to 7	39	39	56	60	62	75	Ceases.	.....	.....	

NOTE.—All male fur-seals, from yearlings to puberty, are termed "bachelors", or "holluschickie", and all male fur-seals, from the age of five years on, are termed ("virile") bulls, or "seacatchie". All female fur-seals from one year and upward, are termed "cows", or "matkamie" ("mothers"). All the young, under yearlings, are termed "pups", or "kotiokie" ("little cats").

In conclusion I desire to state that, as to the relative ages of the male and female *Callorhinus*, I have hitherto, in referring to it, taken the general ground of estimation which is commonly accepted in rating the duration of mammalian life. Nevertheless, on this point especially, I feel that if the real facts of the comparative longevity of the two sexes could be positively ascertained, the great discrepancy which the table above faithfully portrays and suggests, would be so modified as to make the relative length of life for the female much greater, and that of the male correspondingly less.

In my discussion of the reproduction of these animals, I clearly show that the male is physically qualified to procreate his race at the age of four years—but that he is not allowed to do so until he is six or seven. Also, that the female becomes a mother at the expiration of the third year of her life, and the immediate opening of the fourth. So, really, viewed from the point of sheer physical ability, if undisturbed, the male fur-seal wears the "toga virilis" at the close of the third and beginning of the fourth year of his life, while the female comes out eager for fecundation and prospective maternity at the end of the second and the beginning of the third summer of her existence.

TABULATED EXHIBIT OF METHOD OF KILLING, AND SEASONS OF THE YEAR IN WHICH IT IS DONE, ON THE PRIBYLOV ISLANDS.—In order that the reader may the more clearly understand the time of killing, the seasons in which it is done, and the relative selection of the different classes of seals for slaughter, food, etc., I take much satisfaction in being able to submit the following tabulation, which gives at a glance a succinct and comprehensive epitomé of one entire sealing-season and its work on the Pribylov islands. This table is literally brought down to date, and the figures upon which it is based I have taken from the recent official report of Col. H. G. Otis, who is the treasury agent in charge of the interests of the government therein represented. I ought, also, in simple justice to the authority from whom I have taken these enumerations, to state that those specifications of fact are evidently compiled from his field-notes with scrupulous attention, both in their original registration, and also in their transcription. As I here arrange them, they present a photograph of the entire disposition of 107,000 fur-seals slain upon the seal-islands during one whole year.

Table showing the numbers slain, the time of so doing, the character, and the disposition made of the fur-seal on the Pribylov group for one year ending July 20, 1881.

Months; time of slaughter.	Number of fur-seals killed for natives' food.					Holluschickie killed for their skins.					Grand sum total		Remarks.
	Holluschickie.	Pups.	Rejected skins.			Prime.	Second rate.	Rejected skins.			Skins accepted by Alaska Com'l Co.	Whole number of fur-seals slain.	
			Under size.	Stagy.	Cut.			Under size.	Cut.	Other reasons.			
SAINT PAUL ISLAND.													
Balance left over from "1880 count"	.....	.....	.....	.....	.....	228	.....	.....	.....	.....	228	.....	Generally, a few skins left behind every season.
July (20th to 31st), 1880	261	.....	5	233	13	.....	.....	.....	.....	.....	10	261	Two year old males and a few yearlings, principally.
August, 1880	622	.....	.....	.....	.....	.....	.....	.....	.....	.....	371	622	Two and three year old males generally.
September, 1880	661	.....	.....	661	.....	.....	.....	.....	.....	.....	.....	661	Two year old males chiefly.
October, 1880	453	10	10	393	.....	.....	.....	.....	.....	.....	60	463	Two and three year old males principally.
November, 1880	540	4,400	4,401	54	5	.....	.....	.....	.....	.....	480	4,940	Pups killed by express permission of the Secretary of the Treasury.
December, 1880	1,248	3	14	.....	36	.....	.....	.....	.....	.....	1,201	1,251	Very fine skins; remaining latest on the islands.
January, 1881	1,058	.....	4	.....	13	.....	.....	.....	.....	.....	1,041	1,058	Do. Do.
May, 1881	176	.....	5	.....	.....	.....	.....	.....	.....	.....	171	176	Very fine skins; first arrivals, two and three year old males.
June, 1881	.....	.....	.....	.....	.....	34,836	294	11	16	3	35,130	35,160	Very fine skins; two and three year old males chiefly.
July (1st to 20th), 1881	.....	.....	.....	.....	.....	40,969	339	14	23	.....	41,308	41,345	Do. Do.
Total	5,019	4,413	4,439	1,341	67	76,033	633	25	39	3	80,000	85,937	
SAINT GEORGE ISLAND.													
Balance left over from "1880 count"	.....	.....	.....	.....	.....	25	.....	.....	.....	.....	25	.....	A few skins always left behind—not properly cured.
July (20th to 31st), 1880	147	.....	.....	.....	.....	.....	.....	.....	.....	.....	147	147	Two year old males, principally.
August, 1880	277	.....	11	.....	.....	.....	.....	.....	.....	.....	266	277	Two and three year old males, usually.
September, 1880	122	.....	.....	64	.....	.....	.....	.....	.....	.....	58	122	Do. Do.
October, 1880	63	500	500	62	.....	.....	.....	.....	.....	.....	1	563	Pups, killed by express permission of the Secretary of the Treasury.
November, 1880	10	795	795	.....	.....	.....	.....	.....	.....	.....	10	805	Do. Do.
December, 1880	46	35	35	.....	.....	.....	.....	.....	.....	.....	46	81	Two and three year old males; fine skins.
May, 1881	87	.....	.....	.....	.....	.....	.....	.....	.....	.....	87	87	Two and three year old males; first arrivals of the new sealing year.
June, 1881	.....	.....	.....	.....	.....	8,133	.....	1	31	1	8,133	8,166	Very fine skins; two and three year old males chiefly.
July (1st to 20th), 1881	.....	.....	.....	.....	.....	11,227	.....	.....	25	5	11,227	11,257	Do. Do.
Total	752	1,330	1,341	126	.....	19,385	.....	1	56	6	20,000	21,505	
Pribylov catch for 1880 (St. Paul and St. George islands): Grand sum total	5,771	5,743	5,780	1,467	67	95,418	633	26	95	9	100,000	107,442	

EXPLANATORY COMMENTS UPON THE ABOVE TABLE.—It will be at once noticed that, in the result of this last season's work on the Pribylov islands, as illustrated so clearly above, the Alaska Commercial Company has taken its full annual legal quota of 100,000 fur-seal skins therefrom. I call attention to it, because it is the first season in which the company has done so; it has never heretofore permitted more than 99,800, in round numbers, to be taken and charged to its account, preferring to always be a little within the mark, on account of the exceeding difficulty of reconciling the enumeration of the two sets of government officers, when their counts are placed side by side. For instance, the list of the treasury agent on the islands, when the skins are first shipped, is the official indorsement of the company's catch for the year; but when the ship reaches San Francisco, then these skins are all counted over anew by another staff of government agents. Should the tally of the seal-island agent be defective, and show that it was so by the recount of the custom-house officers in San Francisco, then did it run over 100,000 skins, the company would have an annoying and unpleasant explanation to make; while the resident treasury agent would be charged with maladministration of his affairs. Therefore, as it has never happened before, until this season of 1881, that the two counts at San Francisco and St. Paul have agreed to a unit, the company has given strict and imperative orders that no more than 99,800 or 99,850 skins shall be annually taken by its agents from the seal-islands. Taking the full quota of this season of 1881, was contrary to its express direction.

It is an exceedingly difficult matter to count these skins, precisely to a dot, when they are rapidly hustled into the baidars and then tossed below the decks of the rolling, pitching ship which receives them; a rough sea may be running, a gale of wind howling through the rigging, and a thick fog shrouding all in its wet gloom. I believe, therefore, from my own full experience in this important matter, that it is a physical impossibility, at many seasons of shipment, to tally accurately *every* pelt as it enters the vessel's hold, when loaded off the islands here. The Treasury agent who comes within 100 to 150 skins, more or less, of the true 100,000, or in that ratio to the whole catch, as it may be, is doing all that he possibly can under the circumstances. Naturally, the custom-house tally is considered the most accurate, by reason of the great physical advantages attendant; and, upon its certification the company pays the tax levied by law.

USELESS SLAUGHTER OF THE PUPS.—The observer will also notice, that during the last season, viz, July 20, 1880, to July 20, 1881, as shadowed in the foregoing table, more than 7,000 seals were killed for food, the skins of which were simply wasted—never used; and of that aggregate we find nearly 6,000, or about nine-tenths of the entire loss, to be "pups". At this point, and in this connection, I desire to enter my protest against the useless and wholly uncalled-for slaughter of these pups, which is annually permitted and inadvertently ordered, with the best of spirit, by the Secretary of the Treasury. It is a shiftless legacy of the old Russian Company, which the present admirable conduct of business on the Pribylov islands really renders superfluous and wasteful; it is simply catering to a gastronomic weakness of the Aleuts, that should not be considered, inasmuch as the supply and the flesh of the two and three year-old males is fully good enough; and most of the skins taken from such animals late in October and thereon to the end of the year, will be accepted as prime by the company, and counted in the regular annual quota for exportation. I have in this matter, however, been quite as much at fault as the Secretary himself; more so, because I have not hitherto directed attention to it; it escaped my mind in 1874, and I have not had occasion to recall it until the present writing.

THE SEASON OF 1881 A VERY CREDITABLE ONE.—The exhibit given above, of the work performed in the height of the sealing season, June and July, is a better one, even, than any one which has passed prior to it under my supervision. In other words, the number of cut or rejected skins is almost infinitesimal compared with the huge aggregate accepted; and, were it not for the wasted pup skins, this presentation of the field-labor on the seal-islands for 1881, would be a very clean and economic synopsis.*

The thought also occurred to me, when regarding this special point of the relative improvement in the method of killing and handling seals and pelts, that a very simple yet trustworthy notice, as to the increase or diminution of the seal-life, would be served annually in the following manner: in 1872, I observed that the natives never had any difficulty in getting their full quota of "holluschickie" daily, during the prime season of taking skins; again, in 1873, I saw that, if anything, the number of "holluschickie" required was easier to obtain than in 1872, prior; still again, throughout the killing-season of 1874, the constant remark of all concerned, at St. Paul, was that the prime seals were never so abundant before; and, finally, in 1876, I heard, from these same parties interested, that it had been the most auspicious season, throughout, ever known to St. Paul island.

Thus, it may naturally be inferred, that this steady and rather increased supply of "holluschickie" from year to year, means nothing, unless it points to a relative annual augmentation of the seal-life on the Pribylov islands; and it really acts in this wise as a life-barometer, that is sensibly affected by the heavier or lighter pressure of the rookeries operating upon it.

Hence, the foregoing table, brought down as it is, to date, shows that the chosen seals are in abundant supply; that the work was remarkably expeditious; that the natives scarcely wasted a skin by cutting on the killing-grounds; and, all in all, it represents a highly creditable state of affairs, suggestive of the steady condition of prosperity and security, which I unhesitatingly prophesied in 1873, after giving the matter much study and reflection.

A PRESENTATION OF THE REVENUE DERIVED FROM THE PRIBYLOV ISLANDS.—The following transcript from the books of the Treasury Department, shows the exact receipts which the public coffers have derived as revenues from the seal-industry on the Pribylov islands, between the date of the act leasing them, July 1, 1870, up to August 20, 1881. I may say, without the least exaggeration, that these interests never yielded a tithe of this substantial aid and support to the government of Russia, and they would not have returned a single cent, net, to the Treasury of the United States, had they not been so wisely and promptly protected by the good sense of our Congress in 1870. They would have passed in a few short seasons beyond all knowledge of men, as far as their appearance on the great breeding rookeries of St. Paul and St. George was concerned.

*The report of Colonel Otis, special agent Treasury Department, in charge of the seal-islands, for 1880, contains an interesting table, which covers a period of eleven years, viz, 1869–1880, inclusive; and it shows, first, the number of seal-skins taken in each sealing season proper on St. Paul island; second, the number of days expended in the work per annum; third, the number of sealers engaged; fourth, the average number of skins taken per day; and fifth, the average daily credit of skins taken for each man. The deduction which that gentleman makes from this suggestive and instructive codification, is that the seals seem to sensibly increase from year to year, rather than to diminish in numbers.

TAX AND RENTAL PAID INTO THE TREASURY OF THE UNITED STATES BY THE ALASKA COMMERCIAL COMPANY—THE LESSEE OF THE PRIBYLOV ISLANDS—1870–'81.

Tax on seal-skins taken by the Alaska Commercial Company, per act of July 1, 1870.

No. 422, 4th quarter, 1870	$86,167 00	
No. 376, 1st quarter, 1871	5,862 00	
No. 1215, 2d quarter, 1871	9,051 00	
		$101,080 00
No. 753, 4th quarter, 1871	159,545 63	
No. 1255, 2d quarter, 1872	102,807 00	
		262,352 63
No. 596, 4th quarter, 1872		252,181 12
No. 1466, 3d quarter, 1873	108,066 00	
No. 1467, 3d quarter, 1873	150,648 75	
No. 1001, 4th quarter, 1873	13,366 50	
		272,081 25
No. 1533, 3d quarter, 1874	261,822 75	
No. 1534, 3d quarter, 1874	672 00	
		262,494 75
No. 445, 3d quarter, 1875	10,106 25	
No. 1515, 3d quarter, 1875	147,598 50	
No. 433, 4th quarter, 1875	104,879 25	
		262,584 00
No. 1089, 3d quarter, 1876	172,063 50	
No. 433, 1st quarter, 1877	64,092 00	
		236,155 50
No. 1527, 3d quarter, 1877		198,255 75
No. 1659, 3d quarter, 1878	36,965 25	
No. 1660, 3d quarter, 1878	209,895 00	
No. 1581, 4th quarter, 1878	15,587 25	
		262,447 50
No. 1088, 3d quarter, 1879	223,125 00	
No. 1686, 4th quarter, 1879	39,275 25	
		262,400 25
3d quarter, 1880		262,500 00
1881		262,395 00
Total tax paid up to date, August 20, 1881		2,896,927 75
Plus the annual rental of $55,000, from 1871–1880, inclusive, plus $5,480 75 rental for short lease of 1870 = rental paid		555,480 75
Grand sum total of tax and rental		3,452,408 50